

**VPDES PERMIT PROGRAM FACT SHEET**

FILE NO: 698

This document gives pertinent information concerning the VPDES Permit listed below. This permit is being processed as a Minor MUNICIPAL permit.

1. PERMIT NO.: VA0060526 EXPIRATION DATE: April 2, 2014
  
2. FACILITY NAME AND LOCAL MAILING ADDRESS FACILITY LOCATION ADDRESS (IF DIFFERENT)  

St. Brides Correctional Center/  
 Environmental Services Unit (SBCC/ESU)  
 VADOC, ERO 1001 Obici Industrial Blvd., Suite F      SBCC, 701 Sanderson Road  
 Suffolk, VA 23434      Chesapeake, VA 23328-6482

CONTACT AT FACILITY: CONTACT AT LOCATION ADDRESS  
NAME: Dallas L. Phillips NAME: Charles Brown  
TITLE: Environmental Services Manager TITLE: Treatment Plant Supervisor  
PHONE: (757)925-2212 PHONE: (757)296-3364  
EMAIL: EMAIL:
  
3. OWNER CONTACT: (TO RECEIVE PERMIT) CONSULTANT CONTACT:  
NAME: Timothy G. Newton NAME:  
TITLE: Environmental Services Director FIRM NAME:  
COMPANY NAME: VDOC ADDRESS:  
ADDRESS: 6900 Atmore Drive  
 Richmond, VA 23225  
PHONE: (804)887-8069 PHONE: ( )  
EMAIL: EMAIL:
  
4. PERMIT DRAFTED BY: DEQ, Water Permits, Regional Office  

Permit Writer(s): Melinda Woodruff *my* Date(s): 12/12/13, *my* 1/31/14, 2/18/14  
 Reviewed By: Deanna Austin Date(s): 2/11/14, 2/19/14
  
5. PERMIT ACTION:  

( ) Issuance      (x) Reissuance      ( ) Revoke & Reissue      ( ) Owner Modification  
 ( ) Board Modification      ( ) Change of Ownership/Name [Effective Date:      ]
  
6. SUMMARY OF SPECIFIC ATTACHMENTS LABELED AS:  

|                          |   |
|--------------------------|---|
| Attachment <u>1</u>      | Site Inspection Report/Memorandum   |
| Attachment <u>2</u>      | Discharge Location/Topographic Map  |
| Attachment <u>3</u>      | Schematic/Plans & Specs/Site Map/Water Balance  |
| Attachment <u>4</u>      | TABLE I - Discharge/Outfall Description   |
| Attachment <u>5</u>      | TABLE II - Effluent Monitoring/Limitations  |
| Attachment <u>6</u>      | Effluent Limitations/Monitoring Rationale/Suitable<br>Data/Antidegradation/Antibacksliding      |
| Attachment <u>7</u>      | Special Conditions Rationale  |
| Attachment <u>8</u>      | Receiving Waters Info./Tier Determination/STORET Data/Stream<br>Modeling/303(d) Listed Segments |
| Attachment <u>9</u>      | TABLE III(a) and TABLE III(b) - Change Sheets   |
| Attachment <u>10</u>     | Chronology Sheet  |
| Attachment <u>      </u> | Public Participation  |

APPLICATION COMPLETE: December 12, 2013

7. PERMIT CHARACTERIZATION: (Check as many as appropriate)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Existing Discharge | <input checked="" type="checkbox"/> Effluent Limited                   |
| <input type="checkbox"/> Proposed Discharge            | <input checked="" type="checkbox"/> Water Quality Limited              |
| <input checked="" type="checkbox"/> Municipal          | <input type="checkbox"/> WET Limit                                     |
| SIC Code(s) 9223                                       | <input type="checkbox"/> Interim Limits in Permit                      |
| <input type="checkbox"/> Industrial                    | <input type="checkbox"/> Interim Limits in Other Document              |
| SIC Code(s)  | <input type="checkbox"/> Compliance Schedule Required                  |
| <input type="checkbox"/> POTW                          | <input type="checkbox"/> Site Specific WQ Criteria                     |
| <input type="checkbox"/> PVOTW                         | <input type="checkbox"/> Variance to WQ Standards                      |
| <input type="checkbox"/> Private                       | <input type="checkbox"/> Water Effects Ratio                           |
| <input type="checkbox"/> Federal                       | <input checked="" type="checkbox"/> Discharge to 303(d) Listed Segment |
| <input checked="" type="checkbox"/> State              | <input type="checkbox"/> Toxics Management Program Required            |
| <input type="checkbox"/> Publicly-Owned Industrial     | <input type="checkbox"/> Toxics Reduction Evaluation                   |
|  | <input type="checkbox"/> Storm Water Management Plan                   |
|  | <input type="checkbox"/> Pretreatment Program Required                 |
|  | <input type="checkbox"/> Possible Interstate Effect                    |
|  | <input type="checkbox"/> CBP Significant Dischargers List              |

8. RECEIVING WATERS CLASSIFICATION: River basin information.

Outfall No(s): 001  
Receiving Stream: UNTRIB to Indian Creek  
River Mile: 53XAH00.87  
Basin: Chowan  
Subbasin: Albemarle Sound  
Section: 1C  
Class: II (Freshwater Standards Apply)  
Special Standard(s): PWS  
Tidal: NO  
7-Day/10-Year Low Flow: MGD  
1-Day/10-Year Low Flow: MGD  
30-Day/5-Year Low Flow: MGD  
Harmonic Mean Flow: MGD

9. FACILITY DESCRIPTION: Describe the type facility from which the discharges originate.

EXISTING municipal discharge resulting from the discharge of treated domestic sewage from a State correctional center.

10. LICENSED OPERATOR REQUIREMENTS: ☐ No ☒ Yes Class: II

11. RELIABILITY CLASS: Industrial Facility - NA

12. SITE INSPECTION DATE: January 7, 2010 REPORT DATE: January 8, 2010

Performed By: Clyde Gantt, Compliance

SEE ATTACHMENT 1

13. DISCHARGE(S) LOCATION DESCRIPTION: Provide USGS Topo which indicates the discharge location, significant (large) discharger(s) to the receiving stream, water intakes, and other items of interest.

Name of Topo: Moyock Quadrant No.: 2C SEE ATTACHMENT 2

14. ATTACH A SCHEMATIC OF THE WASTEWATER TREATMENT SYSTEM(S) [IND. & MUN.]. FOR INDUSTRIAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE PRODUCTION CYCLE(S) AND ACTIVITIES. FOR MUNICIPAL FACILITIES, PROVIDE A GENERAL DESCRIPTION OF THE TREATMENT PROVIDED.

Narrative: Influent equalization basin, four sequencing batch reactor (SBR) basins for treatment process (with fine bubble diffusers, jet mixing headers, floating controls, two ultraviolet disinfection basins, three aerobic digesters, dewatering by plate and frame sludge press, sludge transported to Southampton CC by contractor for land application. Post aeration. Programmable Logic controller (PLC) in operations building.

SEE ATTACHMENT 3

15. DISCHARGE DESCRIPTION: Describe each discharge originating from this facility.

SEE TABLE I (OR CAN SUBSTITUTE PAGE 2C) - SEE ATTACHMENT 4

16. COMBINED TOTAL FLOW:

TOTAL: 0.544 MGD (for public notice)

DESIGN FLOW: 0.544 MGD (MUN.)

17. STATUTORY OR REGULATORY BASIS FOR EFFLUENT LIMITATIONS AND SPECIAL CONDITIONS:  
(Check all which are appropriate)

|                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | State Water Control Law                              |
| <input checked="" type="checkbox"/> | Clean Water Act                                      |
| <input checked="" type="checkbox"/> | VPDES Permit Regulation (9 VAC 25-31-10 et seq.)     |
| <input checked="" type="checkbox"/> | EPA NPDES Regulation (Federal Register)              |
| <input type="checkbox"/>            | EPA Effluent Guidelines (40 CFR 133 or 400 - 471)    |
| <input checked="" type="checkbox"/> | Water Quality Standards (9 VAC 25-260-5 et seq.)     |
| <input checked="" type="checkbox"/> | Wasteload Allocation from a TMDL or River Basin Plan |

18. EFFLUENT LIMITATIONS/MONITORING: Provide all limitations and monitoring requirements being placed on each outfall.

SEE TABLE II - ATTACHMENT 5

19. EFFLUENT LIMITATIONS/MONITORING RATIONALE: Attach any analyses of an outfall by individual toxic parameter. As a minimum, it will include: statistics summary (number of data values, quantification level, expected value, variance, covariance, 97th percentile, and statistical method); wasteload allocation (acute, chronic and human health); effluent limitations determination; input data listing. Include all calculations used for each outfall and set of effluent limits and those used in any model(s). Include all calculations/documentation of any antidegradation or anti-backsliding issues in the development of any limitations; complete the review statements below. Provide a rationale for limiting internal waste streams and indicator pollutants. Attach chlorine mass balance calculations, if performed. Attach any additional information used to develop the limitations, including any applicable water quality standards calculations (acute, chronic and human health).

OTHER CONSIDERATIONS IN LIMITATIONS DEVELOPMENT:

VARIANCES/ALTERNATE LIMITATIONS: Provide justification or refutation rationale for requested variances or alternatives to required permit conditions/limitations. This includes, but is not limited to: waivers from testing requirements; variances from technology guidelines or water quality standards; WER/translator study consideration; variances from standard permit limits/conditions.

N/A

**SUITABLE DATA:** In what, if any, effluent data were considered in the establishment of effluent limitations and provide all appropriate information/calculations.

All suitable effluent data were reviewed.

**ANTIDEGRADATION REVIEW:** Provide all appropriate information/calculations for the antidegradation review.

The receiving stream has been classified as tier 1; therefore, no further review is needed. Permit limits have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving stream, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses

**ANTIBACKSLIDING REVIEW:** Indicate if antibacksliding applies to this permit and, if so, provide all appropriate information.

There are no backsliding issues to address in this permit (i.e., limits as stringent or more stringent when compared to the previous permit).

SEE ATTACHMENT 6

20. **SPECIAL CONDITIONS RATIONALE:** Provide a rationale for each of the permit's special conditions.

SEE ATTACHMENT 7

21. **TOXICS MONITORING/TOXICS REDUCTION AND WET LIMIT SPECIAL CONDITIONS RATIONALE:** Provide the justification for any toxics monitoring program and/or toxics reduction program and WET limit.

NA

22. **SLUDGE DISPOSAL PLAN:** Provide a description of the sludge disposal plan (e.g., type sludge, treatment provided and disposal method). Indicate if any of the plan elements are included within the permit.

Sludge is transported to the VDOC Southampton Correctional Center (SHCC) for land application to sites permitted through the VDOC SHCC VPDES permit NO. VA0062499. As a back-up VDOC SBCC has a contract with the Southeastern Public Service Authority of Virginia (SPSA).

23. **MATERIAL STORED:** List the type and quantity of wastes, fluids, or pollutants being stored at this facility. Briefly describe the storage facilities and list, if any, measures taken to prevent the stored material from reaching State waters.

Calcium hypochlorite (HTH®) is stored on pallets in drums in the building, can only be accessed by the treatment plant operator/supervisor.

24. **RECEIVING WATERS INFORMATION:** Refer to the State Water Control Board's Water Quality Standards [e.g., River Basin Section Tables (9 VAC 25-260-5 et seq.)]. Use 9 VAC 25-260-140 C (introduction and numbered paragraph) to address tidal waters where fresh water standards would be applied or transitional waters where the most stringent of fresh or salt water standards would be applied. Attach any memoranda or other information which helped to develop permit conditions (i.e. tier determinations, PReP complaints, special water quality studies, STORET data and other biological and/or chemical data, etc.

SEE ATTACHMENT 8

25. 305(b)/303(d) Listed Segments: Indicate if the facility discharges to a segment that is listed on the current 303(d) list and, if so, provide all appropriate information/calculations.

This facility discharges directly to an unnamed tributary which is not an impaired segment. This receiving stream segment eventually discharges to Indian Creek which has been listed in Category 5 of the 305(b)/303(d) list for non-attainment of dissolved oxygen.

EPA approved the Northwest River watershed TMDL on 4/26/2011, SWCB approved 6/25/2012 for this segment. It contains a wasteload allocation for this discharge of total phosphorus TMDL due to low dissolved oxygen impairment (Average annual load = 1877.68 kg/yr total phosphorus and Maximum daily load of 5.144 kg/day). This permit contains those same limits of total phosphorus which are in compliance with the TMDL.

The permit contains limits for DO, TSS, and TP.

26. CHANGES TO PERMIT: Use TABLE III(a) to record any changes from the previous permit and the rationale for those changes. Use TABLE III(b) to record any changes made to the permit during the permit processing period and the rationale for those changes [i.e., use for comments from the applicant, VDH, EPA, other agencies and/or the public where comments resulted in changes to the permit limitations or any other changes associated with the special conditions or reporting requirements].

SEE ATTACHMENT 9

27. NPDES INDUSTRIAL PERMIT RATING WORKSHEET:

N/A - This is a municipal facility.

28. DEQ PLANNING COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from DEQ planning.

The discharge is not addressed in any planning document but will be included when the plan is updated.

29. PUBLIC PARTICIPATION: Document comments/responses received during the public participation process. If comments/responses provided, especially if they result in changes to the permit, place in the attachment.

VDH/DSS COMMENTS RECEIVED ON DRAFT PERMIT: Document any comments received from the Virginia Dept. of Health and the Div. of Shellfish Sanitation and noted how resolved.

By letter dated 12/3/13, the VDH provided the following comments: The raw water intake for the Northwest River System waterworks is located approximately 6 miles downstream of the discharge. This should be a sufficient distance to minimize the impacts of the discharge.

The DSS has no comments on the application/draft permit.

OTHER COMMENTS RECEIVED FROM RIPARIAN OWNERS/CITIZENS ON DRAFT PERMIT: Document any comments received from other sources and note how resolved.

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation, and no comments were received.

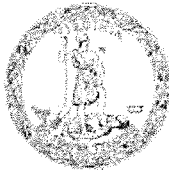
OR

The application and draft permit have received public notice in accordance with the VPDES Permit Regulation. Section 9 VAC 35-31-310 of the VPDES Permit Regulation states, in part, "The Board shall hold a public hearing whenever it



ATTACHMENT 1

SITE INSPECTION REPORT/MEMORANDUM



# **COMMONWEALTH of VIRGINIA**

## **DEPARTMENT OF ENVIRONMENTAL QUALITY**

TIDEWATER REGIONAL OFFICE

L. Preston Bryant, Jr.  
Secretary of Natural Resources

5636 Southern Boulevard, Virginia Beach, Virginia 23462  
(757) 518-2000 Fax (757) 518-2009  
[www.deq.virginia.gov](http://www.deq.virginia.gov)

David K. Paylor  
Director

Francis L. Daniel  
Regional Director

February 12, 2010

Mr. Dallas L. Phillips  
Environmental Services Unit  
VDOC, 1001 Obici Industrial Blvd., Suite F  
Suffolk, VA 23434

Re: Inspection Report  
Saint Brides Correctional Center STP (VA0060526)

Dear Mr. Phillips:

Enclosed is a copy of the report prepared for the inspection conducted at your facility on January 7, 2010. Please note the deficiencies cited in this report and implement appropriate corrective measures in order to ensure continued permit compliance. Within twenty (20) days of receipt of this report, you are required to submit a letter documenting that the necessary corrections have been made.

If you have any questions regarding this report, please feel free to contact me at the above address, telephone (757) 518-2114 or email [clyde.gantt@deq.virginia.gov](mailto:clyde.gantt@deq.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Clyde K. Gantt", with a long horizontal flourish extending to the right.

Clyde K. Gantt  
VPA/VPDES Permit Inspector

Enclosure

cc: DEQ/OWCP: Steve Stell  
DEQ/TRO: File

**DEQ**  
**WASTEWATER FACILITY INSPECTION REPORT**  
**PREFACE**

|                                       |  |                |                       |
|---------------------------------------|--|----------------|-----------------------|
| VPDES/State Certification No.         | (RE) Issuance Date                       | Amendment Date | Expiration Date       |
| VA0060526                             | April 3, 2009                            | N/A            | April 2, 2014         |
| Facility Name                         | Address                                  |                | Telephone Number      |
| VDOC Saint Brides Correctional Center | 701 Sanderson Rd., Chesapeake, VA 2328   |                | (757) 421-6600 X 2860 |
| Owner Name                            | Address                                  |                | Telephone Number      |
| VA Dept. of Corrections               | 1001 Obici Industrial Blvd., Suffolk, VA |                | (757) 925-2212        |
| Responsible Official                  | Title                                    |                | Telephone Number      |
| Dallas L. Phillips                    | Environmental Services Manager           |                | (757) 925-2212        |
| Responsible Operator                  | Operator Cert. Class/number              |                | Telephone Number      |
| Charles Brown                         | Class I / 0001440                        |                | (757) 421-6600 X 2860 |

## TYPE OF FACILITY:

| DOMESTIC    |  |       |   | INDUSTRIAL |  |           |  |
|-------------|--|-------|---|------------|--|-----------|--|
| Federal     |  | Major |   | Major      |  | Primary   |  |
| Non-federal |  | Minor | X | Minor      |  | Secondary |  |

## INFLUENT CHARACTERISTICS:

## DESIGN:

|  |                    |       |  |
|--|--------------------|-------|--|
|  | Flow               | 0.544 |  |
|  | Population Served  | 2000  |  |
|  | Connections Served | 2     |  |
|  | BOD <sub>5</sub>   | 97%   |  |
|  | TSS                | 97.5% |  |

## EFFLUENT LIMITS: SPECIFY UNITS

| Parameter | Min. | Avg.  | Max. | Parameter | Min. | Avg. | Max. |
|-----------|------|-------|------|-----------|------|------|------|
| Flow      |      | 0.544 |      | E. Coli   |      | 126  |      |
| pH        | 6.0  |       | 9.0  | CBOD      |      | 10   | 15   |
| TSS       |      | 10    | 15   |           |      |      |      |
| D.O.      | 3.0  |       |      |           |      |      |      |
| TKN       |      | 3.0   | 4.5  |           |      |      |      |

|  |                        |                        |  |
|--|------------------------|------------------------|--|
|  | Receiving Stream       | Unnamed Trb – NW River |  |
|  | Basin                  | Chowan                 |  |
|  | Discharge Point (LONG) | 394461E                |  |
|  | Discharge Point (LAT)  | 051529N                |  |

REV 5/00

**DEQ  
WASTEWATER FACILITY  
INSPECTION REPORT  
PART 1**

Inspection date: January 7, 2010

Date form completed: January 8, 2010

Inspection by: Clyde Gantt

Inspection agency: DEQ

Time spent: 7 Hours

Announced: No

Reviewed by: Kenneth T. Raum

Scheduled: Yes

Present at inspection: Mr. Charles E. Brown – Plant Manager (757) 421-6600 X2860

## TYPE OF FACILITY:

**Domestic****Industrial**☐ Federal☐ Major☐ Major☐ Primary☐ Nonfederal☒ Minor☐ Minor☐ Secondary

## Type of inspection:

☒ Routine☐ Compliance/Assistance/Complaint☐ Reinspection

Date of last inspection: Dec. 8, 2005

Agency: DEQ

Population served: 2000

Connections served: 2

Last month grab: TSS - 142 mg/L Flow - 0.1831 MGD

(Influent) Month: December, 2009

Other - pH: 7.1 S.U.

Last month Comp.: TSS - 1 mg/L Flow - 0.203 MGD

(Effluent)

Other: pH - 6.9 - 7.4 S.U., TKN - 1.05 mg/l

First Quarter average: TSS - 1.2 mg/L Flow - 0.188 MGD

(Effluent)

Other: pH - 6.6 - 7.6 S.U., TKN - 1.0 mg/l

## DATA VERIFIED IN PREFACE

☒ Updated ☐ No changes

Has there been any new construction?

☐ Yes☒ No

If yes, were plans and specifications approved?

☐ Yes☐ No☒ NA

DEQ approval date:

**(A) PLANT OPERATION AND MAINTENANCE**

1. Class and number of licensed operators: I – 1 (#1449), II - 1, III – 1, IV - 1, Trainee - 2
2. Hours per day plant is manned: 9 Hours/Day
3. Describe adequacy of staffing. ☐ Good ☒ Average ☐ Poor
4. Does the plant have an established program for training personnel?  
☐ Yes ☒ No
5. Describe the adequacy of the training program. ☐ Good ☒ Average ☐ Poor
6. Are preventive maintenance tasks scheduled? ☒ Yes ☐ No
7. Describe the adequacy of maintenance. ☐ Good ☒ Average ☐ Poor\*
8. Does the plant experience any organic/hydraulic overloading?  
 If yes, identify cause and impact on plant: ☐ Yes ☒ No
9. Any bypassing since last inspection? ☐ Yes ☒ No
10. Is the standby electric generator operational? ☒ Yes ☐ No\* ☐ NA
11. Is the STP alarm system operational? ☒ Yes ☐ No\* ☐ NA
12. How often is the standby generator exercised? Weekly  
 Power Transfer Switch? Weekly Alarm System? Weekly
13. When was the cross connection control device last tested on the potable water service? Dec. 2, 2009
14. Is sludge being disposed in accordance with the approved sludge disposal plan? ☒ Yes ☐ No ☐ NA
15. Is septage received by the facility? ☐ Yes ☒ No  
 Is septage loading controlled? ☐ Yes ☐ No  
 Are records maintained? ☐ Yes ☐ No
16. Overall appearance of facility: ☒ Good ☐ Average ☐ Poor

Comments: \*Operators attend DEQ training as available and as needed.

**(B) PLANT RECORDS**

1. Which of the following records does the plant maintain?

|   |   |                             |  |
|---|---|-----------------------------|--|
| Operational Logs for each unit process                  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA            |
| Instrument maintenance and calibration                  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA            |
| Mechanical equipment maintenance                        | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | <input type="checkbox"/> NA            |
| Industrial waste contribution<br>(Municipal Facilities) | <input type="checkbox"/> Yes            | <input type="checkbox"/> No | <input checked="" type="checkbox"/> NA |

2. What does the operational log contain?

|  |   |
|--|---|
| <input type="checkbox"/> Visual observations           | <input checked="" type="checkbox"/> Flow measurement    |
| <input checked="" type="checkbox"/> Laboratory results | <input checked="" type="checkbox"/> Process adjustments |
| <input type="checkbox"/> Control calculations          | <input type="checkbox"/> Other (specify)                |

Comments:

3. What do the mechanical equipment records contain?

|  |  |
|--|--|
| <input checked="" type="checkbox"/> As built plans and specs   | <input type="checkbox"/> Spare parts inventory     |
| <input checked="" type="checkbox"/> Manufacturers instructions | <input type="checkbox"/> Equipment/parts suppliers |
| <input checked="" type="checkbox"/> Lubrication schedules      | <input type="checkbox"/> Other (specify)           |

Comments:

4. What do the industrial waste contribution records contain  
(Municipal Only)?

|  |  |
|--|--|
| <input type="checkbox"/> Waste characteristics | <input type="checkbox"/> Locations and discharge types |
| <input type="checkbox"/> Impact on plant       | <input type="checkbox"/> Other (specify)               |

Comments:

5. Which of the following records are kept at the plant and available to personnel?

|   |   |
|---|---|
| <input checked="" type="checkbox"/> Equipment maintenance records | <input checked="" type="checkbox"/> Operational Log |
| <input type="checkbox"/> Industrial contributor records           | <input type="checkbox"/> Instrumentation records    |
| <input checked="" type="checkbox"/> Sampling and testing records  |   |

6. Records not normally available to plant personnel and their location:

7. Were the records reviewed during the inspection? ☒ Yes ☐ No

8. Are the records adequate and the O & M Manual current? ☒ Yes ☐ No

9. Are the records maintained for the required 3-year time period? ☒ Yes ☐ No

Comments:

**(C) SAMPLING**

1. Do sampling locations appear to be capable of providing representative samples? ☒ Yes ☐ No\*
2. Do sample types correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
3. Do sampling frequencies correspond to those required by the VPDES permit? ☒ Yes ☐ No\*
4. Are composite samples collected in proportion to flow? ☒ Yes ☐ No\* ☐ NA
5. Are composite samples refrigerated during collection? ☒ Yes ☐ No\* ☐ NA
6. Does plant maintain required records of sampling? ☒ Yes ☐ No\*
7. Does plant run operational control tests? ☒ Yes ☐ No

Comments:

**(D) TESTING**

1. Who performs the testing? ☒ Plant ☐ Central Lab ☒ Commercial Lab

Name: TKN analysis performed by Jennings Labs.

If plant performs any testing, complete 2-4.

2. What method is used for chlorine analysis? N/A
3. Does plant appear to have sufficient equipment to perform required tests? ☐ Yes ☐ No\*
4. Does testing equipment appear to be clean and/or operable? ☐ Yes ☐ No\*

Comments:

**(E) FOR INDUSTRIAL FACILITIES WITH TECHNOLOGY BASED LIMITS ONLY**

1. Is the production process as described in the permit application? (If no, describe changes in comments)  
☐ Yes ☐ No ☐ NA
2. Do products and production rates correspond as provided in the permit application? (If no, list differences)  
☐ Yes ☐ No ☐ NA
3. Has the State been notified of the changes and their impact on plant effluent? Date:  
☐ Yes ☐ No\* ☐ NA

Comments:

| Problems identified at last inspection: | Corrected | Not Corrected |
|---|-----------|---------------|
| 1. None                                 | [ ]       | [ ]           |
| 2.                                      | [ ]       | [ ]           |
| 3.                                      | [ ]       | [ ]           |
| 4.                                      | [ ]       | [ ]           |

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### SUMMARY

#### Comments:

1. The St. Brides pump station does not have the required alarm system battery back-up.
2. There is no testing done to prove that the sludge meets Class B requirements for biosolids.
3. The treatment plant was in overall good condition and appears well maintained.

#### Recommendations for action:

1. 9VAC25-790-420.D. requires a backup power supply for the alarm system in a Reliability Class I facility with dual electrical feed sources. The St. Brides pumps station must be modified to include a backup power supply.
2. 9VAC25-31-560 requires pathogen reduction and vector attraction reduction requirements for biosolids. 9VAC25-31-710.B & D. provides the pathogen reduction options for Class B sludge. One of these options must be implemented and documented.  
Please note that the vector attraction reduction requirement is met by VDOC Southampton using 9VAC25-31-720.B.10.
3. The Sludge Management Plan (SMP) for this facility must be revised to document the pathogen reduction and vector attraction methods used to meet the requirements for Class B biosolids.



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard, Virginia Beach, Virginia 23462

(757) 518-2000 Fax (757) 518-2009

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Doug Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Francis L. Daniel  
Regional Director

February 10, 2010

Mr. Dallas L. Phillips  
VA Dept. of Corrections – ESU  
1001 Obici Industrial Blvd., Suite F  
Suffolk, VA 23434

Re: Laboratory Inspection  
Saint Brides Correctional Center STP (VA0060526)

Dear Mr. Phillips:

Enclosed is a copy of the inspection report for the laboratory evaluation conducted on January 7, 2010. Before leaving the facility that day I reviewed the deficiencies found during the inspection and discussed the required corrective measures. Please note that the Laboratory Evaluation Section of the report identifies that the method of analysis for E. Coli, the Laboratory Records Section and the Laboratory Equipment Section still require correction. The report identifies the specific deficiencies and makes recommendations for corrective measures.

In view of the significance attached to proper sampling and analysis of samples for use in complying with the terms of your VPDES/VPA permit, please review the attached report and make the appropriate corrections to ensure permit compliance. To avoid possible enforcement action, within fifteen (15) days of receipt of this letter send a written notification to this office of the corrective measures that you have implemented. If you have not taken corrective action and/or responded to this office in writing by the above deadline, this matter will be referred to the Regional Compliance Auditor and a Warning Letter (WL) may be issued.

If you have any questions regarding this report, please contact me or Mr. Kenneth T. Raum at the above address or telephone (757) 518-2114, or email [clyde.gantt@deq.virginia.gov](mailto:clyde.gantt@deq.virginia.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Clyde K. Gantt".

Clyde K. Gantt  
Environmental Specialist II

Enclosure

**DEPARTMENT OF ENVIRONMENTAL QUALITY - WATER DIVISION**  
**LABORATORY INSPECTION REPORT**

10/01

|   |  |  |   |  |
|---|--|--|---|--|
| <b>FACILITY NO:</b><br>VA0060526  | <b>INSPECTION DATE:</b><br>January 7, 2010 | <b>PREVIOUS INSP. DATE:</b><br>December 8, 2005                                  | <b>PREVIOUS EVALUATION:</b><br>Deficiencies   | <b>TIME SPENT:</b><br>8 Hours                        |
| <b>NAME/ADDRESS OF FACILITY:</b><br><br>VDOC Saint Brides Correctional Center<br>701 Sanderson Road<br>Chesapeake, VA 23328 |  | <b>FACILITY CLASS:</b><br><br>( ) MAJOR<br>(X) MINOR<br>( ) SMALL<br>( ) VPA/NDC | <b>FACILITY TYPE:</b><br><br>(X) MUNICIPAL<br>( ) INDUSTRIAL<br>( ) FEDERAL<br>( ) COMMERCIAL LAB | <b>UNANNOUNCED INSPECTION?</b><br>(X) YES<br>( ) NO  |
|   |  |  |   | <b>FY-SCHEDULED INSPECTION?</b><br>(X) YES<br>( ) NO |
| <b>INSPECTOR(S):</b><br>Clyde Gantt   |  | <b>REVIEWERS:</b><br>Kenneth T. Raum   | <b>PRESENT AT INSPECTION:</b><br>Mr. Charles Brown – Plant Manager                                |  |

| LABORATORY EVALUATION                                      | DEFICIENCIES? |    |
|--|---------------|----|
|  | Yes           | No |
| LABORATORY RECORDS   | X             |    |
| GENERAL SAMPLING & ANALYSIS                                |               | X  |
| LABORATORY EQUIPMENT                                       | X             |    |
| DISSOLVED OXYGEN ANALYSIS PROCEDURES                       |               | X  |
| pH ANALYSIS PROCEDURES                                     |               | X  |
| TOTAL SUSPENDED SOLIDS ANALYSIS PROCEDURES                 |               | X  |
| CARBONACEOUS BIOCHEMICAL OXYGEN DEMAND ANALYSIS PROCEDURES |               | X  |
| E. COLI ANALYSIS PROCEDURES                                | X             |    |
|  |               |    |
|  |               |    |
|  |               |    |
|  |               |    |
|  |               |    |

| QUALITY ASSURANCE/QUALITY CONTROL |                          |   |                  |
|-----------------------------------|--------------------------|---|------------------|
| Y/N                               | QUALITY ASSURANCE METHOD | PARAMETERS                                      | FREQUENCY        |
| X                                 | REPLICATE SAMPLES        | TSS   | EVERY 2 ANALYSIS |
|                                   | SPIKED SAMPLES           |   |                  |
| X                                 | STANDARD SAMPLES         | GGA, TSS, pH                                    | YEARLY           |
|                                   | SPLIT SAMPLES            |   |                  |
|                                   | SAMPLE BLANKS            |   |                  |
|                                   | OTHER                    |   |                  |
|                                   | EPA-DMR QA DATA?         | RATING: ( ) No Deficiency ( ) Deficiency (X) NA |                  |
|                                   | QC SAMPLES PROVIDED?     | RATING: ( ) No Deficiency ( ) Deficiency (X) NA |                  |

COPIES TO: (X) DEQ - RO; (X) OWCP; ( ) VDH- FO and DWE; (X) OWNER; ( ) EPA-Region III; ( ) Other:

**LABORATORY RECORDS SECTION**

LABORATORY RECORDS INCLUDE THE FOLLOWING:

|                                     |                 |                                     |               |                                     |                         |
|-------------------------------------|-----------------|-------------------------------------|---------------|-------------------------------------|-------------------------|
| <input checked="" type="checkbox"/> | SAMPLING DATE   | <input checked="" type="checkbox"/> | ANALYSIS DATE | <input checked="" type="checkbox"/> | CONT MONITORING CHART   |
| <input checked="" type="checkbox"/> | SAMPLING TIME   | <input checked="" type="checkbox"/> | ANALYSIS TIME | <input checked="" type="checkbox"/> | INSTRUMENT CALIBRATION  |
| <input checked="" type="checkbox"/> | SAMPLE LOCATION | <input checked="" type="checkbox"/> | TEST METHOD   | <input type="checkbox"/>            | INSTRUMENT MAINTENANCE  |
|                                     |                 |                                     |               | <input checked="" type="checkbox"/> | CERTIFICATE OF ANALYSIS |

WRITTEN INSTRUCTIONS INCLUDE THE FOLLOWING:

|                                     |                    |                                     |              |                                     |                     |
|-------------------------------------|--------------------|-------------------------------------|--------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | SAMPLING SCHEDULES | <input checked="" type="checkbox"/> | CALCULATIONS | <input checked="" type="checkbox"/> | ANALYSIS PROCEDURES |
|-------------------------------------|--------------------|-------------------------------------|--------------|-------------------------------------|---------------------|

|   | YES | NO | N/A |
|---|-----|----|-----|
| DO ALL ANALYSTS INITIAL THEIR WORK?                                     | X   |    |     |
| DO BENCH SHEETS INCLUDE ALL INFORMATION NECESSARY TO DETERMINE RESULTS? | X   |    |     |
| IS THE DMR COMPLETE AND CORRECT? MONTH(S) REVIEWED: Dec., 2009          |     | X  |     |
| ARE ALL MONITORING VALUES REQUIRED BY THE PERMIT REPORTED?              | X   |    |     |

**GENERAL SAMPLING AND ANALYSIS SECTION**

|  | YES | NO | N/A |
|--|-----|----|-----|
| ARE SAMPLE LOCATION(S) ACCORDING TO PERMIT REQUIREMENTS?   | X   |    |     |
| ARE SAMPLE COLLECTION PROCEDURES APPROPRIATE?  | X   |    |     |
| IS SAMPLE EQUIPMENT CONDITION ADEQUATE?  | X   |    |     |
| IS FLOW MEASUREMENT ACCORDING TO PERMIT REQUIREMENTS?  | X   |    |     |
| ARE COMPOSITE SAMPLES REPRESENTATIVE OF FLOW?  | X   |    |     |
| ARE SAMPLE HOLDING TIMES AND PRESERVATION ADEQUATE?  | X   |    |     |
| IF ANALYSIS IS PERFORMED AT ANOTHER LOCATION, ARE SHIPPING PROCEDURES ADEQUATE? LIST PARAMETERS AND NAME & ADDRESS OF LAB: <u>TKN analysis conducted by Jennings Labs.</u> | X   |    |     |

**LABORATORY EQUIPMENT SECTION**

|  | YES | NO | N/A |
|--|-----|----|-----|
| IS LABORATORY EQUIPMENT IN PROPER OPERATING RANGE? | X   |    |     |
| ARE ANNUAL THERMOMETER CALIBRATION(S) ADEQUATE?    | X   |    |     |
| IS THE LABORATORY GRADE WATER SUPPLY ADEQUATE?     |     | X  |     |
| ARE ANALYTICAL BALANCE(S) ADEQUATE?                | X   |    |     |

# LABORATORY INSPECTION REPORT SUMMARY

|   |  |  |
|---|--|--|
| <b>FACILITY NAME:</b><br>VDOC Saint Brides Correctional Center  | <b>FACILITY NO:</b><br>VA0060526   | <b>INSPECTION DATE:</b><br>January 7, 2010 |
| <b>LABORATORY EVALUATION:</b>   | <input checked="" type="checkbox"/> (X) Deficiencies<br><input type="checkbox"/> ( ) No Deficiencies |  |
| <b>LABORATORY RECORDS</b>   |  |  |
| The laboratory records section has a deficiency in DMR reporting. The E. Coli average was incorrectly reported as 16 n/cml; the correct average is 17 n/cml. The TSS average was incorrectly reported as 0.7 mg/l; the correct average is 1.0 mg/l.   |  |  |
| <b>GENERAL SAMPLING AND ANALYSIS</b>  |  |  |
| The general sampling and analysis section has no deficiencies.  |  |  |
| <b>LABORATORY EQUIPMENT</b>   |  |  |
| The laboratory equipment section has a deficiency with the laboratory grade water used. There is no documentation that the water used meets the requirements for laboratory grade water. See attached checklist.  |  |  |
| <b>PARAMETER SUMMARY</b>  |  |  |
| <b>pH</b>   |  |  |
| The analysis for the parameter of pH has no deficiencies. However, the bench sheet still references EPA Method 150.1, which is no longer acceptable. The bench sheet must be revised to show the correct reference.   |  |  |
| <b>Dissolved Oxygen (DO)</b>  |  |  |
| The analysis for the parameter of DO has no deficiencies.   |  |  |
| <b>Carbonaceous Biochemical Oxygen Demand (CBOD)</b>  |  |  |
| The analysis for the parameter of CBOD has no deficiencies. However, due to low Polyseed BOD, it is recommended that the amount of seed used be increased from 2 ml to 3-4 ml. Also, the Glucose Glutamic Acid (GGA) Check was performed using 1%/3ml of GGA solution. This check is normally performed using 2%/6ml. It is recommended that the GGA check is conducted with the increase volume of solution. |  |  |
| <b>Total Suspended Solids (TSS)</b>   |  |  |
| The analysis for the parameter of TSS has no deficiencies.  |  |  |
| <b>E. Coli</b>  |  |  |
| The analysis for the parameter of E. Coli has a deficiency with determining analytical results. The 12/18/09 sample result was reported as 435.2 n/cml. The actual result was 360.9 n/cml.  |  |  |

ATTACHMENT 2

DISCHARGE LOCATION/TOPOGRAPHIC MAP

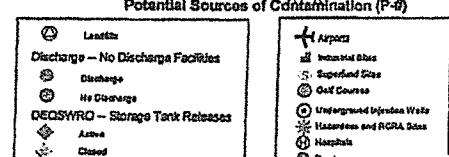
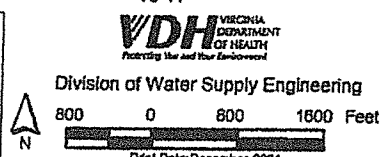
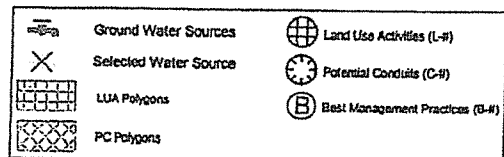
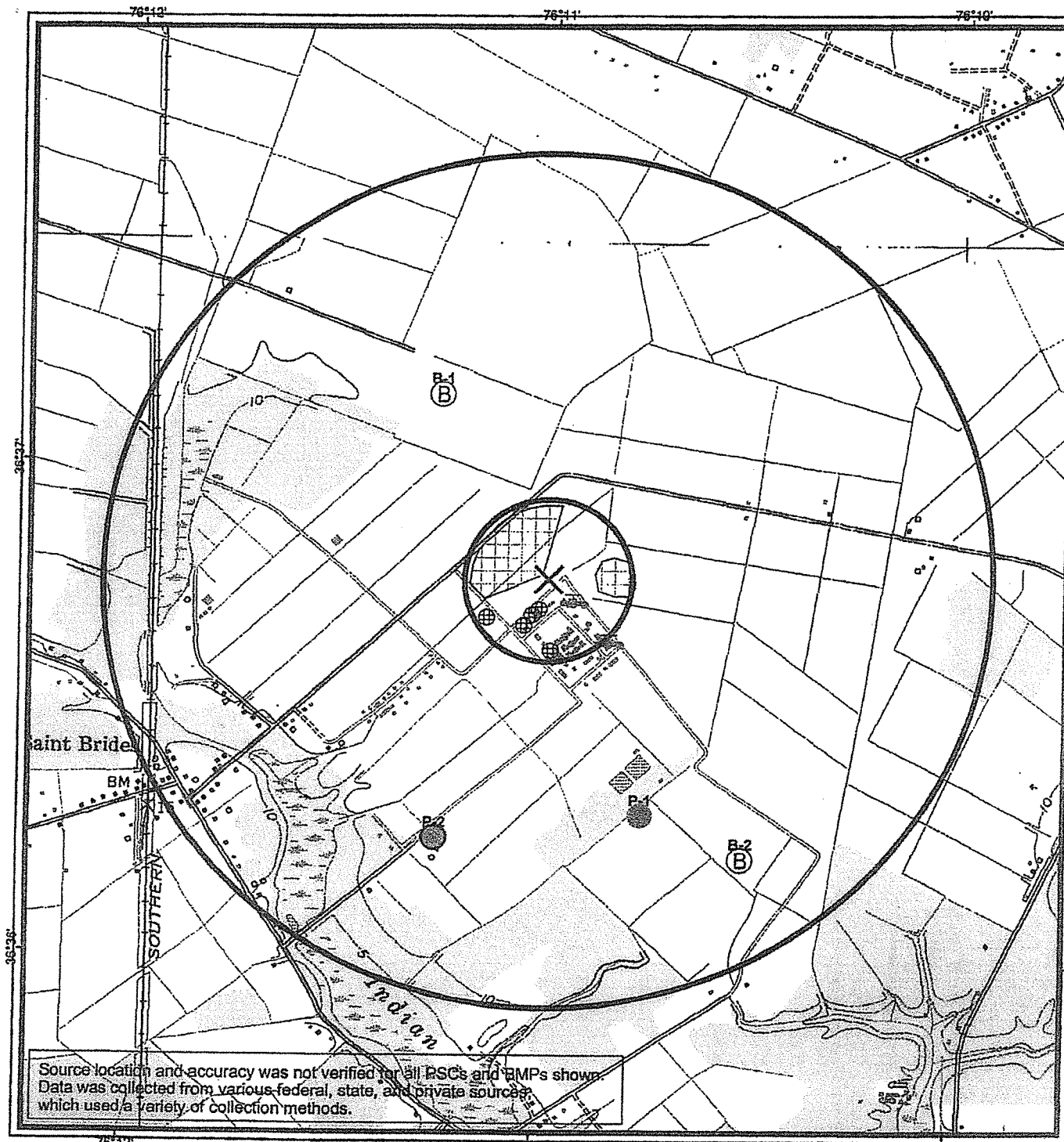
PWSID:3550750  
FACILITY:WELL #3

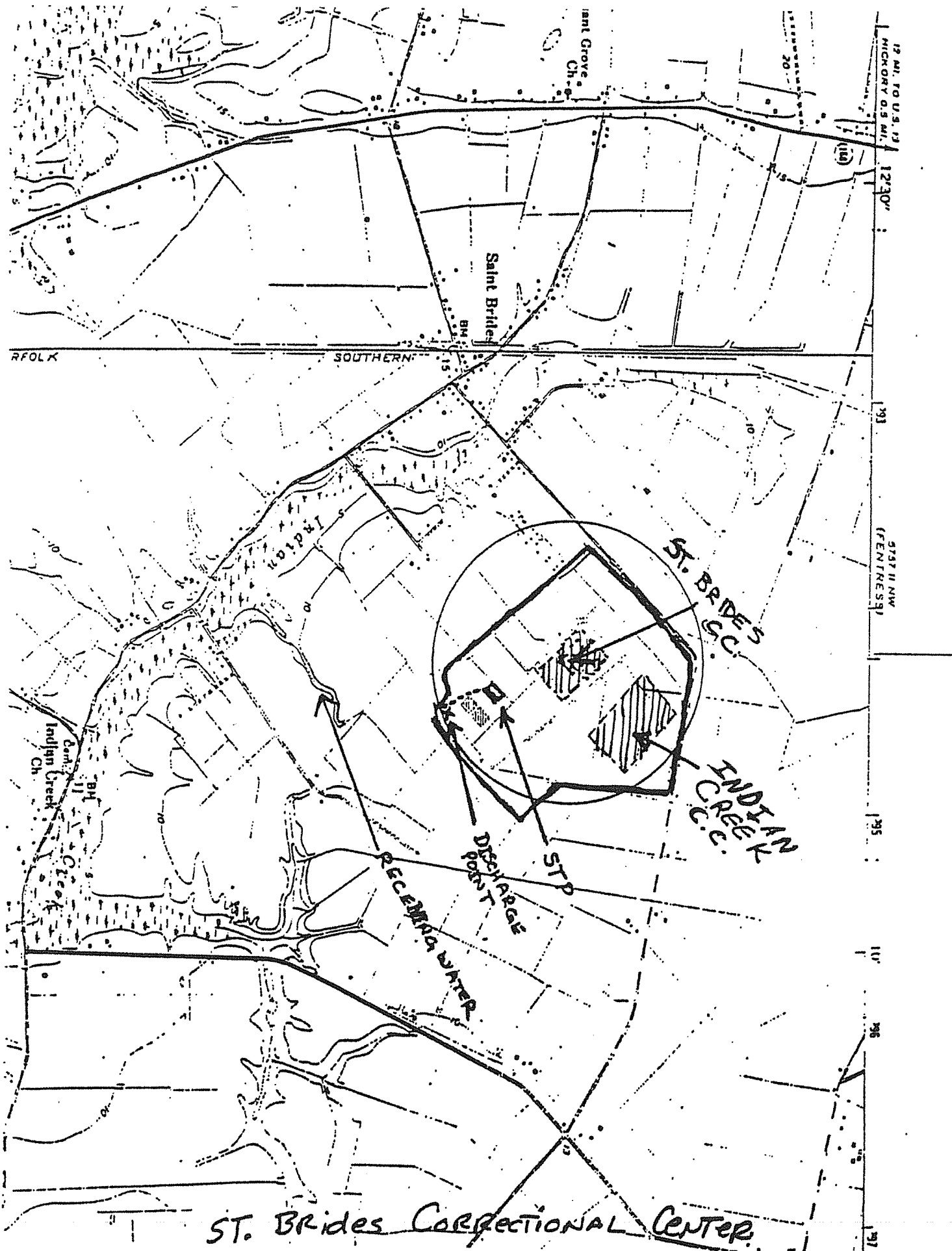
WATERWORKS:ST BRIDES CORRECTION CENTER

# SWAP Zone 2 Map

DISTRICT 20B

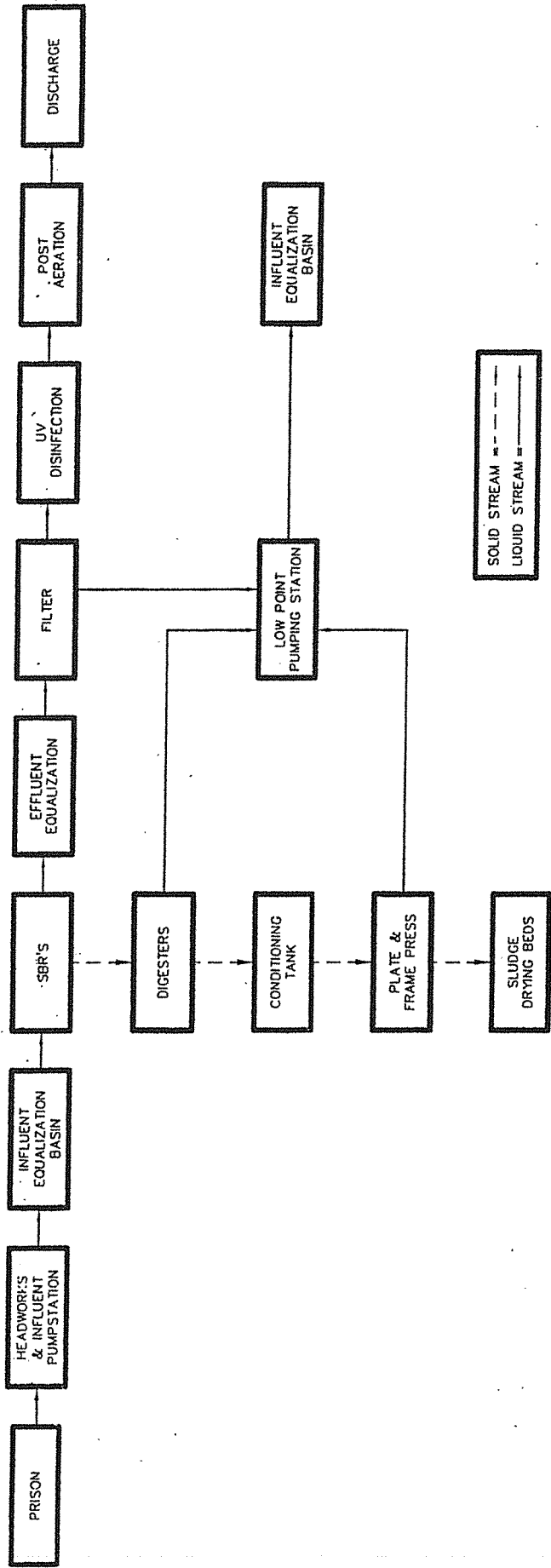
COUNTY/CITY: CHESAPEAKE





ATTACHMENT 3

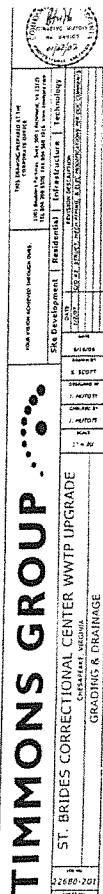
SCHEMATIC/PLANS & SPECS/SITE MAP/  
WATER BALANCE



PROCESS FLOW DIAGRAM  
NOT TO SCALE

**ENVIRONMENTAL SERVICES UNIT  
ST. BRIDES CORRECTIONAL CENTER  
WASTEWATER TREATMENT PLANT**

The wastewater treatment plant (WWTP) at St. Brides Correctional Center (SBCC) is the responsibility of the Virginia Department of Corrections (VDOC) Environmental Services Unit (ESU). The plant treats wastewater from both SBCC and Indian Creek Correctional Center (ICCC). Both sites have an independent sewage pumping station that transfers sewage to the WWTP. The sewage goes through a grinding and screening process at both stations before entering the plant. The WWTP is a Sequencing Batch Reactor (SBR) activated sludge process designed for .544 mgd. Flow enters the plant after passing through a muffin / auger monster unit (1). It flows into a sewage pumping station (2) that feeds the equalization basin (3). The influent is transferred into one of each of the four SBR basins (4) at different cycles made up of six phases. All four basins are equipped with a fine bubble air diffuser system, a 7.5 hp mixer, a floating decanter, and a submersible wasting pump. The computer program that controls the functioning of the SBR plant consist of six process control phases which are Mix Fill – React Fill – React – Settle – Decant – Waste Idle. The decanted supernatant flows to the filter feed well (5). This treated wastewater is pumped to the filter building (6) which consists of an Aqua Disk filtering unit. The filter has an average hydraulic loading rate of 3.54 gpm/ft<sup>2</sup>. Flow from the filter is gravity fed to the Ultraviolet Disinfection (UV) unit (7) which consists of two banks. After passing through UV treatment, the flow enters the post aeration basin (8). From this point, the effluent flow goes through a meter and is discharged into the receiving stream (9). Sludge handling consists of three digesters (10) and a plate and frame sludge press located in the solids handling building (11). The three digesters have a holding capacity of approximately 300,000 gallons of wasted sludge. There are also six small sludge drying beds (12) for emergency use. Dewatered and stabilized biosolids are transported to Southampton Correctional Center by a contractor to be stored until land applying is ready. The dewatered flow goes to the low point pump station (13) which pumps to the head of the EQ basin. All operational controls are stationed in the control building (6) which is a separate part of the filter building. The WWTP can also be controlled by the SCADA system in the office and laboratory building (14). There is an emergency power generator (15) with an automatic transfer switch to handle the WWTP entire electrical load should a power failure occur.





## ATTACHMENT 4

### TABLE I - DISCHARGE/OUTFALL DESCRIPTION

TABLE I

NUMBER AND DESCRIPTION OF OUTFALLS

| OUTFALL<br>NO. | DISCHARGE<br>LOCATION      | DISCHARGE SOURCE<br>(1)  | TREATMENT<br>(2)  | FLOW<br>(3)  |
|----------------|----------------------------|--|---|--------------|
| 001            | 36° 36' 41"<br>076° 11' 3" | Domestic discharge<br>from housing for<br>incarcerated males<br>and female inmates | Four sequencing batch<br>reactor (SBR) basins<br>for treatment process<br>(with fine bubble<br>diffusers, jet mixing<br>headers, floating<br>decanters, and<br>automatic valving),<br>filter building with<br>disk filter and<br>automatic controls, two<br>ultraviolet<br>disinfection basins,<br>Post aeration. | 0.544<br>MGD |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |
|                |                            |  |   |              |

(1) List operations contributing to flow

(2) Give brief description, unit by unit

(3) Give maximum 30-day average flow for industry and design flow for municipal

## ATTACHMENT 5

### TABLE II - EFFLUENT MONITORING/LIMITATIONS

TABLE II - MUNICIPAL EFFLUENT LIMITATIONS/MONITORING

Part I A.1.  
 OUTFALL # 001      DESIGN FLOW: 0.544 MGD  
 Outfall Description: Treated domestic sewage  
 SIC CODE: 9223

| (x) Final Limits ( ) Interim Limits |                  | Effective Dates - From: Issuance |                      |                | To: Expiration |         |  |             |
|-------------------------------------|------------------|----------------------------------|----------------------|----------------|----------------|---------|--|-------------|
| PARAMETER & UNITS                   | BASIS FOR LIMITS | DESIGN FLOW MULTIPLIER           | EFFLUENT LIMITATIONS |                |                |         | MONITORING REQUIREMENTS                                  |             |
|                                     |                  |                                  | MONTHLY AVERAGE      | WEEKLY AVERAGE | MINIMUM        | MAXIMUM | FREQUENCY  | SAMPLE TYPE |
| Flow (MGD) [a]                      | 3                |                                  | NL                   | NA             | NA             | NL      | Continuous   | TI & RE*    |
| pH (S.U.)                           | 3                |                                  | NA                   | NA             | 6.0            | 9.0     | 3D/Week  | Grab        |
| CBOD5 (mg/l) [b] [c]                | 3                |                                  | 10                   | 15             | NA             | NA      | 1/Week   | 8-HC        |
| CBOD (kg/d) [c]                     | 3                | 0.544                            | 21                   | 31             | NA             | NA      | 1/Week   | 8-HC        |
| TSS (mg/l) [b] [c]                  | 3                |                                  | 10                   | 15             | NA             | NA      | 1/Week   | 8-HC        |
| TSS (kg/d) [c]                      | 3                | 0.544                            | 21                   | 31             | NA             | NA      | 1/Week   | 8-HC        |
| D.O. (mg/l)                         | 3                |                                  | NA                   | NA             | 3.0            | NA      | 3D/Week  | Grab        |
| E. Coli (N/CML)                     | 3                |                                  | 126                  | NA             | NA             | NA      | 3D/Week<br>(At 48 Hr. intervals<br>Between 10 am & 4 pm) | Grab        |
| Tot. Kjeldahl Nitrogen (mg/l) [b]   | 3                |                                  | 3.0                  | 4.5            | NL             | NL      | 1/Month  | 8-HC        |
| Tot. Kjeldahl Nitrogen (kg/d)       | 3                | 0.544                            | 6.2                  | 9.3            | NL             | NL      | 1/Month  | 8-HC        |

| PARAMETER & UNITS                             | BASIS FOR LIMITS | DESIGN FLOW MULTIPLIER | EFFLUENT LIMITATIONS |                |         |         | MONITORING REQUIREMENTS |             |
|---|------------------|------------------------|----------------------|----------------|---------|---------|-------------------------|-------------|
|   |                  |                        | MONTHLY AVERAGE      | WEEKLY AVERAGE | MINIMUM | MAXIMUM | FREQUENCY               | SAMPLE TYPE |
| Total Phosphorus (kg/d)<br>[b][e]             | 3                |                        | NA                   | NA             | NA      | 5.14    | 1/Month                 | 8-HC        |
| Total Phosphorus Monthly Load (kg/m) [e]      | 3                |                        | NA                   | NL             | NA      | NA      | 1/Month                 | CALC        |
| Total Phosphorus Year-to-Date (kg/yr) [e]     | 3                |                        | NA                   | NL             | NA      | NA      | 1/Month                 | CALC        |
| Total Phosphorus Calendar Year (kg/yr) [d][e] | 3                |                        | 1877.68              | NA             | NA      | NA      | 1/YR                    | CALC        |
| Dissolved Copper (ug/l)<br>[b]                | 3                |                        | NA                   | NA             | NA      | NL      | 1/6 Months              | Grab        |

\*Totalizing, Indicating & Recording Equipment

NA = NOT APPLICABLE; NL = NO LIMIT, MONITORING REQUIREMENT ONLY

1/6 Months = In accordance with the following schedule: 1st half (January 1 - June 30); 2nd half (July 1 - December 31).

1/Year = Between January 1 and December 31.

8-HC = 8 Hour Composite samples are the combination of grab samples taken in proportion to flow over an 8 hour period of time which ensures that a representative sample is obtained for the reporting period.

Upon issuance of the permit, Discharge Monitoring Reports (DMRs) shall be submitted to the regional office at the frequency required by the permit regardless of whether an actual discharge occurs. In the event that there is no discharge for the monitoring period, then "no discharge" shall be reported on the DMR.

- [a] See Part I.B.5. for exceeding 95% of design capacity three months consecutively.
- [b] See Parts I.B.6. and I.B.7. for quantification levels and reporting requirements, respectively.
- [c] See Part I.B.8. for additional instructions regarding effluent monitoring frequencies..
- [d] Annual average limitation, based on a calculation of all samples collected during the calendar year.
- [e] See Part I.B.9. for additional instructions regarding total phosphorus.

The basis for the limitations codes are:

1. Technology (e.g., Federal Effluent Guidelines)
2. Water Quality Standards (9 VAC 25-260 et. seq.)
3. Best Professional Judgment

Part I.A.

2. The design flow of this treatment facility is 0.544 MGD.
3. There shall be no discharge of floating solids or visible foam in other than trace amounts.
4. At least 85% removal for BOD and TSS must be attained for this effluent.

ATTACHMENT 6

EFFLUENT LIMITATIONS/MONITORING  
RATIONALE/SUITABLE DATA/  
ANTIDEGRADATION/ANTIBACKSLIDING

**Rationale for Effluent Limitations and Monitoring  
Attachment 6**

Outfall 001 in VPDES Permit No. VA0060526 is a municipal discharge from a wastewater treatment plant at a correctional institution. The facility serves St. Brides Correctional Center with 387 inmates and 176 employees and Indian Creek correctional Center with 999 inmates and 247 employees, average daily population can vary. The design flow of the treatment plant is 0.544 MGD which was upgraded during the last reissuance of this permit.

The discharge from Outfall 001 is continuous to an unnamed tributary of Indian Creek to the Northwest River. The receiving waters were assigned a Tier I classification. This assignment requires the effluent limits to comply with water quality standards at a minimum, see Attachment 8. These waters were further assigned Class II waters with special standards for Public Water Supply. (The raw water intake for the Northwest River waterworks is located approximately 6 miles downstream of the discharge.)

The limits for CBOD<sub>5</sub>, TSS, TKN, and DO were applied by the assignment of swamp and marsh waters to the unnamed tributary. I have attached the Memo dated March 9, 1987 for the Advisory Notification of Effluent limits for Swamp and Marsh Waters. The memo includes rationale for the limits.

Mass loading limits for total phosphorus were applied by the assignment of a total maximum daily load (TMDL) to the unnamed tributary discharge stream segment. TMDL is a term that represents the total pollutant a water body can assimilate and still meet water quality standards. The TMDL was developed for total phosphorus due to the low dissolved oxygen impairment (failure to meet water quality standard for dissolved oxygen) for the Norwest River watershed. EPA approved the TMDL April 26, 2011 and SWCB approved the TMDL June 25, 2012. The facility was assigned a waste load allocation (WLA) of an Average annual load of 1187.68 kg/yr and a Maximum daily load of 5.144 kg/day total phosphorus (TP).

I have reviewed the data for all the parameters monitored during the last permit reissuance applicable to this reissuance which include Flow, pH, E.coli, CBOD<sub>5</sub>, TSS, TKN, and DO. The facility was in compliance with all the limits. No changes will be made for this reissuance.

Water quality monitoring was received, 2009, during the last reissuance of this permit. Since Water Quality Standards (WQS) and the design flow of the facility have changed since the last reissuance, another WQS/WLA analysis was performed for this reissuance. Based on the analysis, copper will be monitored due to elevated concentrations. The data collected during this reissuance will allow DEQ to further analyze the need for either continued monitoring or possible limits in order to protect water quality.

**Flow:** No limit, monthly average and daily maximum monitoring continuous; (Totalizing, Indicating & Recording Equipment). This is a standard requirement for municipal facilities.

**pH:** 6.0 s.u. minimum, 9.0 s.u. maximum limits, 3 days per week; basis is best professional judgment to protect water quality in the receiving stream.

**CBOD5 and TSS:** limited by 10 mg/l (21kg/d) monthly average and 15 mg/l (31kg/d) weekly average; 1 day per week; basis is best professional judgment to protect water quality of the receiving stream. The transition zone between the unnamed tributary and the Northwest River is a swamp and therefore the facility has been assigned "Swamp and Marsh Waters" limits in accordance with memo dated March 9, 1987. There is no evidence of degradation of the receiving stream due to this discharge.

**DO:** limited by 3.0 mg/l daily minimum; 3 days per week; basis is best professional judgment to protect water quality in the receiving stream. The transition zone between the unnamed tributary and the Northwest River is a swamp and therefore the facility has been assigned "Swamp and Marsh Waters" limits in accordance with memo dated March 9, 1987. There is no evidence of degradation of the receiving stream due to this discharge.

**E. coli:** limited by 126 N/CML monthly average; 3 days per week between 10am and 4pm; basis is the Water Quality Standards.

**TKN:** limited by 3.0 mg/l (6.2kg/d) monthly average and 4.5 mg/l (9.3 kg/d) weekly average; 1 per month; basis is best professional judgment to protect water quality of the receiving stream. The transition zone between the unnamed tributary and the Northwest River is a swamp and therefore the facility has been assigned "Swamp and Marsh Waters" limits in accordance with memo dated March 9, 1987. There is no evidence of degradation of the receiving stream due to this discharge.

**TP:** limited by 5.14 kg/d maximum; 1 per month; basis is best professional judgment to protect water quality of the receiving stream using mass loadings. Mass loadings are based on TMDL WLA for the receiving stream segment.

**TP Monthly Load:** not limited kg/m weekly average; 1 per month; calculation; basis is best professional judgment to protect water quality of the receiving stream using mass loadings. Mass loadings are based on TMDL WLA for the receiving stream segment.

**TP Year-to-Date:** not limited kg/yr weekly average; 1 per month; calculation; basis is best professional judgment to protect water quality of the receiving stream using mass loadings. Mass loadings are based on TMDL WLA for the receiving stream segment.

**TP Calendar Year:** limited by 1877.68 kg/yr monthly average; 1 per year; calculation; basis is best professional judgment to protect water quality of the receiving stream using mass loadings. Mass loadings are based on TMDL WLA for the receiving stream segment.

**Dissolved Copper:** not limited mg/l maximum; 1 per 6 months; basis is best professional judgment to protect water quality of the receiving stream and WQS/WLA analysis.

**Mass Loading (kg/d) = Flow (MGD) X Concentration (mg/l) X 3.785**

SUBJECT: Advisory Notification of Effluent Limits for Swamp and Marsh Waters

TO: Larry G. Lawson

FROM: A. J. Anthony

DATE: March 9, 1987

In the event that a proposal is received for discharge to a swamp or marsh that cannot be modeled and the current standards are being violated for whatever reason, OERS recommends the following effluent limits:

|                   |   |            |
|-------------------|---|------------|
| CBOD <sub>5</sub> | = | 10 mg/l    |
| TSS               | = | 10 mg/l    |
| TKN               | = | 3 mg/l     |
| DO                | = | 3 mg/l     |
| Cl <sub>2</sub>   | = | 0.011 mg/l |

Our rationale for these recommendations are as follows:

1. We have found over the past years, through application of modeling technology to small streams, that the above limits are representative of effluents that are "self-sustaining"; that is: such an effluent will not normally violate the stream standard even if the stream consists of 100% effluent.

Given the fact that the areas of intended application of our recommendations are such that the stream will not possess good mixing process and may in fact contain 100% effluent for significant distances and times render it necessary, in our opinion, that discharges may be essentially of "self-sustaining" quality.

2. CBOD<sub>5</sub> -- We are recommending nitrification and consequently CBOD is what will be measured. In addition, we believe that where both unoxidized nitrogen and hydrocarbons are limited due to considerations of stream dissolved oxygen, it is correct and reasonable to specify them separately to avoid double counting their impacts.
3. TSS -- We are recommending that TSS be consistent with the BOD limit. This is consistent with past and current practice and should not be difficult to attain.

A TT 1-2  
ES

4. TKN -- We are recommending that unoxidized nitrogen be removed in the treatment plant. The recommended limit on TKN recognizes that a normal domestic effluent usually contains 2-3 mg/l TKN that is refractory and cannot be removed by biological treatment. For industrial discharges this may vary and may be verified by testing. The intent of our recommendation is to remove all biologically oxidizable nitrogen compounds from the effluent.
5. DO -- We are recommending that the dissolved oxygen in the effluent be reasonably consistent with that expected to occur in the receiving stream.
6.  $Cl_2$  -- Mixing can be expected to be extremely poor or non-existent and the stream can be expected to contain 100% effluent for significant distances and times. In order to ensure that the chlorine standard is not violated, the discharge must meet the standard.

It is our belief that the above limits will be adequate to:

1. Protect the beneficial uses of and the aquatic life to be expected in swampy and/or marshy streams.
2. Ensure that the limits will not result in additional degradation to the receiving stream.
3. Provide consistency with the intent and requirements of the law.

It must be pointed out that the above limits are based on the professional opinions of OERS. They are not the result of the application of any predictive technology. The negotiations and trade-offs normally associated with the application of modeling to identify permit limits are simply not practical in this case for the following reasons:

1. There are no models available with which to evaluate various alternatives.
2. The recommended limits are based on professional opinion and are therefore not subject to negotiation.
3. The recommended limits are very stringent and essentially leave no room for trade-offs among the parameters.

As is the case with all guidance provided by OERS, the Regions should obtain concurrence from OERS prior to drafting a permit with the above limits. In addition, if the proposed dischargers disagrees with the limits established, then it is our opinion that ample precedent has been established to allow the dischargers to model the system or provide other documentation that the limits as established are not correct subject to the review and approval of the Board.

Please note that toxic requirements are not covered in this memo, and should follow the normal routine for toxics-related issues.

# FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: VDOC SBCC

Permit No.: VA0060526

Receiving Stream: UNTRIB to Indian Creek

Version: OWP Guidance Memo 00-2011 (8/24/00)

| Stream Information                      |           |  | Stream Flows         |       |  | Mixing Information      |       |  | Effluent Information                    |           |  |
|---|-----------|--|----------------------|-------|--|-------------------------|-------|--|---|-----------|--|
| Mean Hardness (as CaCO <sub>3</sub> ) = | 58.5 mg/L |  | 1Q10 (Annual) =      | 0 MGD |  | Annual - 1Q10 Mix =     | 100 % |  | Mean Hardness (as CaCO <sub>3</sub> ) = | 114 mg/L  |  |
| 90% Temperature (Annual) =              | 26 deg C  |  | 7Q10 (Annual) =      | 0 MGD |  | - 7Q10 Mix =            | 100 % |  | 90% Temp (Annual) =                     | 25 deg C  |  |
| 90% Temperature (Wet season) =          | 26 deg C  |  | 30Q10 (Annual) =     | 0 MGD |  | - 30Q10 Mix =           | 100 % |  | 90% Temp (Wet season) =                 | 21 deg C  |  |
| 90% Maximum pH =                        | 7.1 SU    |  | 1Q10 (Wet season) =  | 0 MGD |  | Wet Season - 1Q10 Mix = | 100 % |  | 90% Maximum pH =                        | 7.7 SU    |  |
| 10% Maximum pH =                        | 6.7 SU    |  | 30Q10 (Wet season) = | 0 MGD |  | - 30Q10 Mix =           | 100 % |  | 10% Maximum pH =                        | 6.7 SU    |  |
| Tier Designation (1 or 2) =             | 1         |  | 30Q5 =               | 0 MGD |  |                         |       |  | Discharge Flow =                        | 0.544 MGD |  |
| Public Water Supply (PWS) Y/N? =        | Y         |  | Harmonic Mean =      | 0 MGD |  |                         |       |  |   |           |  |
| Trout Present Y/N? =                    | n         |  |                      |       |  |                         |       |  |   |           |  |
| Early Life Stages Present Y/N? =        | n         |  |                      |       |  |                         |       |  |   |           |  |

| Parameter<br>(ug/l unless noted)        | Background<br>Conc. | Water Quality Criteria |          |          | Wasteload Allocations |          |          | Antidegradation Baseline |         |       | Antidegradation Allocations |          |    | Most Limiting Allocations |          |          |
|---|---------------------|------------------------|----------|----------|-----------------------|----------|----------|--------------------------|---------|-------|-----------------------------|----------|----|---------------------------|----------|----------|
|   |                     | Acute                  | Chronic  | HH (PWS) | HH                    | Acute    | Chronic  | HH (PWS)                 | HH      | Acute | Chronic                     | HH (PWS) | HH | Acute                     | Chronic  | HH (PWS) |
| Acenaphthene                            | 5                   | --                     | --       | 6.7E+02  | 9.9E+02               | --       | --       | 6.7E+02                  | 9.9E+02 | --    | --                          | --       | -- | --                        | --       | 6.7E+02  |
| Acrolein                                | 0                   | --                     | --       | 6.1E+00  | 9.3E+00               | --       | --       | 6.1E+00                  | 9.3E+00 | --    | --                          | --       | -- | --                        | --       | 6.1E+00  |
| Acrylonitrile <sup>c</sup>              | 0                   | --                     | --       | 5.1E-01  | 2.5E+00               | --       | --       | 5.1E-01                  | 2.5E+00 | --    | --                          | --       | -- | --                        | --       | 5.1E-01  |
| Aldrin <sup>c</sup>                     | 0                   | 3.0E+00                | --       | 4.9E-04  | 5.0E-04               | 3.0E+00  | --       | 4.9E-04                  | 5.0E-04 | --    | --                          | --       | -- | 3.0E+00                   | --       | 4.9E-04  |
| Ammonia-N (mg/l)<br>(Yearly)            | 0                   | 1.44E+01               | 1.82E+00 | --       | --                    | 1.44E+01 | 1.82E+00 | --                       | --      | --    | --                          | --       | -- | 1.44E+01                  | 1.82E+00 | --       |
| Ammonia-N (mg/l)<br>(High Flow)         | 0                   | 1.44E+01               | 2.36E+00 | --       | --                    | 1.44E+01 | 2.36E+00 | --                       | --      | --    | --                          | --       | -- | 1.44E+01                  | 2.36E+00 | --       |
| Anthracene                              | 0                   | --                     | --       | 8.3E+03  | 4.0E+04               | --       | --       | 8.3E+03                  | 4.0E+04 | --    | --                          | --       | -- | --                        | --       | 8.3E+03  |
| Antimony                                | 0                   | --                     | --       | 5.6E+00  | 6.4E+02               | --       | --       | 5.6E+00                  | 6.4E+02 | --    | --                          | --       | -- | --                        | --       | 5.6E+00  |
| Arsenic                                 | 0                   | 3.4E+02                | 1.5E+02  | 1.0E-01  | --                    | 3.4E+02  | 1.5E+02  | 1.0E-01                  | --      | --    | --                          | --       | -- | 3.4E+02                   | 1.5E+02  | 1.0E-01  |
| Barium                                  | 0                   | --                     | --       | 2.0E+03  | --                    | --       | --       | 2.0E+03                  | --      | --    | --                          | --       | -- | --                        | --       | 2.0E+03  |
| Benzene <sup>c</sup>                    | 0                   | --                     | --       | 2.2E+01  | 5.1E+02               | --       | --       | 2.2E+01                  | 5.1E+02 | --    | --                          | --       | -- | --                        | --       | 2.2E+01  |
| Benzidine <sup>c</sup>                  | 0                   | --                     | --       | 8.6E-04  | 2.0E-03               | --       | --       | 8.6E-04                  | 2.0E-03 | --    | --                          | --       | -- | --                        | --       | 8.6E-04  |
| Benzo (a) anthracene <sup>c</sup>       | 0                   | --                     | --       | 3.8E-02  | 1.8E-01               | --       | --       | 3.8E-02                  | 1.8E-01 | --    | --                          | --       | -- | --                        | --       | 3.8E-02  |
| Benzo (b) fluoranthene <sup>c</sup>     | 0                   | --                     | --       | 3.8E-02  | 1.8E-01               | --       | --       | 3.8E-02                  | 1.8E-01 | --    | --                          | --       | -- | --                        | --       | 3.8E-02  |
| Benzo (k) fluoranthene <sup>c</sup>     | 0                   | --                     | --       | 3.8E-02  | 1.8E-01               | --       | --       | 3.8E-02                  | 1.8E-01 | --    | --                          | --       | -- | --                        | --       | 3.8E-02  |
| Benzo (a) pyrene <sup>c</sup>           | 0                   | --                     | --       | 3.8E-02  | 1.8E-01               | --       | --       | 3.8E-02                  | 1.8E-01 | --    | --                          | --       | -- | --                        | --       | 3.8E-02  |
| Bis(2-Chloroethyl) Ether <sup>c</sup>   | 0                   | --                     | --       | 3.0E-01  | 5.3E+00               | --       | --       | 3.0E-01                  | 5.3E+00 | --    | --                          | --       | -- | --                        | --       | 3.0E-01  |
| Bis(2-Chloroisopropyl) Ether            | 0                   | --                     | --       | 1.4E+03  | 6.5E+04               | --       | --       | 1.4E+03                  | 6.5E+04 | --    | --                          | --       | -- | --                        | --       | 1.4E+03  |
| Bis 2-Ethylhexyl Phthalate <sup>c</sup> | 0                   | --                     | --       | 1.2E+01  | 2.2E+01               | --       | --       | 1.2E+01                  | 2.2E+01 | --    | --                          | --       | -- | --                        | --       | 1.2E+01  |
| Bromofom <sup>c</sup>                   | 0                   | --                     | --       | 4.3E+01  | 1.4E+03               | --       | --       | 4.3E+01                  | 1.4E+03 | --    | --                          | --       | -- | --                        | --       | 4.3E+01  |
| Butylbenzophthalate                     | 0                   | --                     | --       | 1.5E+03  | 1.9E+03               | --       | --       | 1.5E+03                  | 1.9E+03 | --    | --                          | --       | -- | --                        | --       | 1.5E+03  |
| Cadmium                                 | 0                   | 4.5E+00                | 1.3E+00  | 5.0E+00  | --                    | 4.5E+00  | 1.3E+00  | 5.0E+00                  | --      | --    | --                          | --       | -- | 4.5E+00                   | 1.3E+00  | 5.0E+00  |
| Carbon Tetrachloride <sup>c</sup>       | 0                   | --                     | --       | 2.3E+00  | 1.6E+01               | --       | --       | 2.3E+00                  | 1.6E+01 | --    | --                          | --       | -- | --                        | --       | 2.3E+00  |
| Chlordane <sup>c</sup>                  | 0                   | 2.4E+00                | 4.3E-03  | 8.0E-03  | 8.1E-03               | 2.4E+00  | 4.3E-03  | 8.0E-03                  | 8.1E-03 | --    | --                          | --       | -- | 2.4E+00                   | 4.3E-03  | 8.0E-03  |
| Chloride                                | 0                   | 8.6E+05                | 2.3E+05  | 2.5E+05  | --                    | 8.6E+05  | 2.3E+05  | 2.5E+05                  | --      | --    | --                          | --       | -- | 8.6E+05                   | 2.3E+05  | 2.5E+05  |
| TRC                                     | 0                   | 1.9E+01                | 1.1E+01  | --       | --                    | 1.9E+01  | 1.1E+01  | --                       | --      | --    | --                          | --       | -- | 1.9E+01                   | 1.1E+01  | --       |
| Chlorobenzene                           | 0                   | --                     | --       | 1.3E+02  | 1.6E+03               | --       | --       | 1.3E+02                  | 1.6E+03 | --    | --                          | --       | -- | --                        | --       | 1.3E+02  |

| Parameter<br>(µg/l unless noted)               | Background<br>Conc. | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |         | Antidegradation Allocations |         |          |         | Most Limiting Allocations |         |          |         |
|--|---------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|---------|-----------------------------|---------|----------|---------|---------------------------|---------|----------|---------|
|  |                     | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH      | Acute                       | Chronic | HH (PWS) | HH      | Acute                     | Chronic | HH (PWS) | HH      |
| Chlorodibromomethane <sup>c</sup>              | 0                   | --                     | --      | 4.0E+00  | 1.3E+02 | --                    | --      | 4.0E+00  | 1.3E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 4.0E+00  | 1.3E+02 |
| Chloroform                                     | 0                   | --                     | --      | 3.4E+02  | 1.1E+04 | --                    | --      | 3.4E+02  | 1.1E+04 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.4E+02  | 1.1E+04 |
| 2-Chloronaphthalene                            | 0                   | --                     | --      | 1.0E+03  | 1.6E+03 | --                    | --      | 1.0E+03  | 1.6E+03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.0E+03  | 1.6E+03 |
| 2-Chlorophenol                                 | 0                   | --                     | --      | 8.1E+01  | 1.5E+02 | --                    | --      | 8.1E+01  | 1.5E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 8.1E+01  | 1.5E+02 |
| Chlorpyrifos                                   | 0                   | 8.3E-02                | 4.1E-02 | --       | --      | 8.3E-02               | 4.1E-02 | --       | --      | 8.3E-02                  | 4.1E-02 | --       | --      | 8.3E-02                     | 4.1E-02 | --       | --      | 8.3E-02                   | 4.1E-02 | --       | --      |
| Chromium III                                   | 0                   | 6.3E+02                | 8.3E+01 | --       | --      | 6.3E+02               | 8.3E+01 | --       | --      | 6.3E+02                  | 8.3E+01 | --       | --      | 6.3E+02                     | 8.3E+01 | --       | --      | 6.3E+02                   | 8.3E+01 | --       | --      |
| Chromium VI                                    | 0                   | 1.6E+01                | 1.1E+01 | --       | --      | 1.6E+01               | 1.1E+01 | --       | --      | 1.6E+01                  | 1.1E+01 | --       | --      | 1.6E+01                     | 1.1E+01 | --       | --      | 1.6E+01                   | 1.1E+01 | --       | --      |
| Chromium, Total                                | 0                   | --                     | --      | 1.0E+02  | --      | --                    | --      | 1.0E+02  | --      | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.0E+02  | --      |
| Chrysene <sup>c</sup>                          | 0                   | --                     | --      | 3.8E-03  | 1.8E-02 | --                    | --      | 3.8E-03  | 1.8E-02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.8E-03  | 1.8E-02 |
| Copper   | 0                   | 1.5E+01                | 1.0E+01 | 1.3E+03  | --      | 1.5E+01               | 1.0E+01 | 1.3E+03  | --      | 1.5E+01                  | 1.0E+01 | 1.3E+03  | --      | 1.5E+01                     | 1.0E+01 | 1.3E+03  | --      | 1.5E+01                   | 1.0E+01 | 1.3E+03  | --      |
| Cyanide, Free                                  | 0                   | 2.2E+01                | 5.2E+00 | 1.6E+04  | --      | 2.2E+01               | 5.2E+00 | 1.6E+04  | --      | 2.2E+01                  | 5.2E+00 | 1.6E+04  | --      | 2.2E+01                     | 5.2E+00 | 1.6E+04  | --      | 2.2E+01                   | 5.2E+00 | 1.6E+04  | --      |
| DDD <sup>c</sup>                               | 0                   | --                     | --      | 3.1E-03  | 3.1E-03 | --                    | --      | 3.1E-03  | 3.1E-03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.1E-03  | 3.1E-03 |
| DDE <sup>c</sup>                               | 0                   | --                     | --      | 2.2E-03  | 2.2E-03 | --                    | --      | 2.2E-03  | 2.2E-03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 2.2E-03  | 2.2E-03 |
| DDT <sup>c</sup>                               | 0                   | 1.1E+00                | 1.0E-03 | 2.2E-03  | 2.2E-03 | 1.1E+00               | 1.0E-03 | 2.2E-03  | 2.2E-03 | 1.1E+00                  | 1.0E-03 | 2.2E-03  | 2.2E-03 | 1.1E+00                     | 1.0E-03 | 2.2E-03  | 2.2E-03 | 1.1E+00                   | 1.0E-03 | 2.2E-03  | 2.2E-03 |
| Demeton  | 0                   | --                     | 1.0E-01 | --       | --      | --                    | 1.0E-01 | --       | --      | --                       | 1.0E-01 | --       | --      | --                          | 1.0E-01 | --       | --      | --                        | 1.0E-01 | --       | --      |
| Diazinon                                       | 0                   | 1.7E-01                | 1.7E-01 | --       | --      | 1.7E-01               | 1.7E-01 | --       | --      | 1.7E-01                  | 1.7E-01 | --       | --      | 1.7E-01                     | 1.7E-01 | --       | --      | 1.7E-01                   | 1.7E-01 | --       | --      |
| Dibenz(a,h)anthracene <sup>c</sup>             | 0                   | --                     | --      | 3.8E-02  | 1.8E-01 | --                    | --      | 3.8E-02  | 1.8E-01 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.8E-02  | 1.8E-01 |
| 1,2-Dichlorobenzene                            | 0                   | --                     | --      | 4.2E-02  | 1.3E+03 | --                    | --      | 4.2E-02  | 1.3E+03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 4.2E-02  | 1.3E+03 |
| 1,3-Dichlorobenzene                            | 0                   | --                     | --      | 3.2E+02  | 9.6E+02 | --                    | --      | 3.2E+02  | 9.6E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.2E+02  | 9.6E+02 |
| 1,4-Dichlorobenzene                            | 0                   | --                     | --      | 6.3E+01  | 1.9E+02 | --                    | --      | 6.3E+01  | 1.9E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 6.3E+01  | 1.9E+02 |
| 3,3-Dichlorobenzidine <sup>c</sup>             | 0                   | --                     | --      | 2.1E-01  | 2.8E-01 | --                    | --      | 2.1E-01  | 2.8E-01 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 2.1E-01  | 2.8E-01 |
| Dichlorobromomethane <sup>c</sup>              | 0                   | --                     | --      | 5.5E+00  | 1.7E+02 | --                    | --      | 5.5E+00  | 1.7E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 5.5E+00  | 1.7E+02 |
| 1,2-Dichloroethane <sup>c</sup>                | 0                   | --                     | --      | 3.8E+00  | 3.7E+02 | --                    | --      | 3.8E+00  | 3.7E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.8E+00  | 3.7E+02 |
| 1,1-Dichloroethylene                           | 0                   | --                     | --      | 3.3E+02  | 7.1E+03 | --                    | --      | 3.3E+02  | 7.1E+03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.3E+02  | 7.1E+03 |
| 1,2-trans-dichloroethylene                     | 0                   | --                     | --      | 1.4E+02  | 1.0E+04 | --                    | --      | 1.4E+02  | 1.0E+04 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.4E+02  | 1.0E+04 |
| 2,4-Dichlorophenol                             | 0                   | --                     | --      | 7.7E+01  | 2.9E+02 | --                    | --      | 7.7E+01  | 2.9E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 7.7E+01  | 2.9E+02 |
| 2,4-Dichlorophenoxy<br>acetic acid (2,4-D)     | 0                   | --                     | --      | 1.0E+02  | --      | --                    | --      | 1.0E+02  | --      | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.0E+02  | --      |
| 1,2-Dichloropropane <sup>c</sup>               | 0                   | --                     | --      | 5.0E+00  | 1.5E+02 | --                    | --      | 5.0E+00  | 1.5E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 5.0E+00  | 1.5E+02 |
| 1,3-Dichloropropane <sup>c</sup>               | 0                   | --                     | --      | 3.4E+00  | 2.1E+02 | --                    | --      | 3.4E+00  | 2.1E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.4E+00  | 2.1E+02 |
| Dieldrin <sup>c</sup>                          | 0                   | 2.4E-01                | 5.6E-02 | 5.2E-04  | 5.4E-04 | 2.4E-01               | 5.6E-02 | 5.2E-04  | 5.4E-04 | 2.4E-01                  | 5.6E-02 | 5.2E-04  | 5.4E-04 | 2.4E-01                     | 5.6E-02 | 5.2E-04  | 5.4E-04 | 2.4E-01                   | 5.6E-02 | 5.2E-04  | 5.4E-04 |
| Diethyl Phthalate                              | 0                   | --                     | --      | 1.7E+04  | 4.4E+04 | --                    | --      | 1.7E+04  | 4.4E+04 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.7E+04  | 4.4E+04 |
| 2,4-Dimethylphenol                             | 0                   | --                     | --      | 3.8E+02  | 8.5E+02 | --                    | --      | 3.8E+02  | 8.5E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.8E+02  | 8.5E+02 |
| Dimethyl Phthalate                             | 0                   | --                     | --      | 2.7E+05  | 1.1E+06 | --                    | --      | 2.7E+05  | 1.1E+06 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 2.7E+05  | 1.1E+06 |
| Di-n-Butyl Phthalate                           | 0                   | --                     | --      | 2.0E+03  | 4.5E+03 | --                    | --      | 2.0E+03  | 4.5E+03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 2.0E+03  | 4.5E+03 |
| 2,4 Dinitrophenol                              | 0                   | --                     | --      | 6.9E+01  | 5.3E+03 | --                    | --      | 6.9E+01  | 5.3E+03 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 6.9E+01  | 5.3E+03 |
| 2-Methyl-4,6-Dinitrophenol                     | 0                   | --                     | --      | 1.3E+01  | 2.8E+02 | --                    | --      | 1.3E+01  | 2.8E+02 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.3E+01  | 2.8E+02 |
| 2,4-Dinitrotoluene <sup>c</sup>                | 0                   | --                     | --      | 1.1E+00  | 3.4E+01 | --                    | --      | 1.1E+00  | 3.4E+01 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 1.1E+00  | 3.4E+01 |
| Dioxin 2,3,7,8-<br>tetrachlorodibenzo-p-dioxin | 0                   | --                     | --      | 5.0E-08  | 5.1E-08 | --                    | --      | 5.0E-08  | 5.1E-08 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 5.0E-08  | 5.1E-08 |
| 1,2-Diphenylhydrazine <sup>c</sup>             | 0                   | --                     | --      | 3.6E-01  | 2.0E+00 | --                    | --      | 3.6E-01  | 2.0E+00 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 3.6E-01  | 2.0E+00 |
| Alpha-Endosulfan                               | 0                   | 2.2E-01                | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01               | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                  | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                     | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                   | 5.6E-02 | 6.2E+01  | 8.9E+01 |
| Beta-Endosulfan                                | 0                   | 2.2E-01                | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01               | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                  | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                     | 5.6E-02 | 6.2E+01  | 8.9E+01 | 2.2E-01                   | 5.6E-02 | 6.2E+01  | 8.9E+01 |
| Alpha + Beta Endosulfan                        | 0                   | 2.2E-01                | 5.6E-02 | --       | --      | 2.2E-01               | 5.6E-02 | --       | --      | 2.2E-01                  | 5.6E-02 | --       | --      | 2.2E-01                     | 5.6E-02 | --       | --      | 2.2E-01                   | 5.6E-02 | --       | --      |
| Endosulfan Sulfate                             | 0                   | --                     | --      | 8.9E+01  | --      | --                    | --      | 8.9E+01  | --      | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 8.9E+01  | --      |
| Endrin   | 0                   | 8.6E-02                | 3.6E-02 | 5.9E-02  | 6.0E-02 | 8.6E-02               | 3.6E-02 | 5.9E-02  | 6.0E-02 | 8.6E-02                  | 3.6E-02 | 5.9E-02  | 6.0E-02 | 8.6E-02                     | 3.6E-02 | 5.9E-02  | 6.0E-02 | 8.6E-02                   | 3.6E-02 | 5.9E-02  | 6.0E-02 |
| Endrin Aldehyde                                | 0                   | --                     | --      | 2.9E-01  | 3.0E-01 | --                    | --      | 2.9E-01  | 3.0E-01 | --                       | --      | --       | --      | --                          | --      | --       | --      | --                        | --      | 2.9E-01  | 3.0E-01 |

| Parameter<br>(ug/l unless noted)       | Background<br>Conc. | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |    | Antidegradation Allocations |         |          |    | Most Limiting Allocations |         |          |         |
|--|---------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|----|-----------------------------|---------|----------|----|---------------------------|---------|----------|---------|
|  |                     | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH | Acute                       | Chronic | HH (PWS) | HH | Acute                     | Chronic | HH (PWS) | HH      |
| Ethylbenzene                           | 0                   | --                     | --      | 5.3E+02  | 2.1E+03 | --                    | --      | 5.3E+02  | 2.1E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.3E+02  | 2.1E+03 |
| Fluoranthene                           | 0                   | --                     | --      | 1.3E+02  | 1.4E+02 | --                    | --      | 1.3E+02  | 1.4E+02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.3E+02  | 1.4E+02 |
| Fluorene                               | 0                   | --                     | --      | 1.1E+03  | 5.3E+03 | --                    | --      | 1.1E+03  | 5.3E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.1E+03  | 5.3E+03 |
| Foaming Agents                         | 0                   | --                     | --      | 5.0E+02  | --      | --                    | --      | 5.0E+02  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E+02  | --      |
| Guthion                                | 0                   | --                     | 1.0E-02 | --       | --      | --                    | 1.0E-02 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | 1.0E-02 | --       | --      |
| Heptachlor <sup>c</sup>                | 0                   | 5.2E-01                | 3.8E-03 | 7.9E-04  | 7.9E-04 | 5.2E-01               | 3.8E-03 | 7.9E-04  | 7.9E-04 | --                       | --      | --       | -- | --                          | --      | --       | -- | 5.2E-01                   | 3.8E-03 | 7.9E-04  | 7.9E-04 |
| Heptachlor Epoxide <sup>c</sup>        | 0                   | 5.2E-01                | 3.8E-03 | 3.9E-04  | 3.9E-04 | 5.2E-01               | 3.8E-03 | 3.9E-04  | 3.9E-04 | --                       | --      | --       | -- | --                          | --      | --       | -- | 5.2E-01                   | 3.8E-03 | 3.9E-04  | 3.9E-04 |
| Hexachlorobenzene <sup>c</sup>         | 0                   | --                     | --      | 2.8E-03  | 2.9E-03 | --                    | --      | 2.8E-03  | 2.9E-03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.8E-03  | 2.9E-03 |
| Hexachlorobutadiene <sup>c</sup>       | 0                   | --                     | --      | 4.4E+00  | 1.8E+02 | --                    | --      | 4.4E+00  | 1.8E+02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 4.4E+00  | 1.8E+02 |
| Hexachlorocyclohexane                  | 0                   | --                     | --      | 2.6E-02  | 4.9E-02 | --                    | --      | 2.6E-02  | 4.9E-02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.6E-02  | 4.9E-02 |
| Alpha-BHC <sup>c</sup>                 | 0                   | --                     | --      | 9.1E-02  | 1.7E-01 | --                    | --      | 9.1E-02  | 1.7E-01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 9.1E-02  | 1.7E-01 |
| Beta-BHC <sup>c</sup>                  | 0                   | --                     | --      | 9.8E-01  | 1.8E+00 | 9.5E-01               | --      | 9.8E-01  | 1.8E+00 | --                       | --      | --       | -- | --                          | --      | --       | -- | 9.5E-01                   | --      | 9.8E-01  | 1.8E+00 |
| Hexachlorocyclohexane                  | 0                   | --                     | --      | 4.0E+01  | 1.1E+03 | --                    | --      | 4.0E+01  | 1.1E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 4.0E+01  | 1.1E+03 |
| Gamma-BHC <sup>c</sup> (Lindane)       | 0                   | --                     | --      | 1.4E+01  | 3.3E+01 | --                    | --      | 1.4E+01  | 3.3E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.4E+01  | 3.3E+01 |
| Hexachlorocyclopentadiene              | 0                   | --                     | 2.0E+00 | --       | --      | --                    | 2.0E+00 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | 2.0E+00 | --       | --      |
| Hexachloroethane <sup>c</sup>          | 0                   | --                     | --      | 3.8E-02  | 1.8E-01 | --                    | --      | 3.8E-02  | 1.8E-01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.8E-02  | 1.8E-01 |
| Hydrogen Sulfide                       | 0                   | --                     | --      | 3.0E+02  | --      | --                    | --      | 3.0E+02  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.0E+02  | --      |
| Indeno (1,2,3-cd) pyrene <sup>c</sup>  | 0                   | --                     | --      | 3.5E+02  | 9.6E+03 | --                    | --      | 3.5E+02  | 9.6E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.5E+02  | 9.6E+03 |
| Iron                                   | 0                   | --                     | --      | 0.0E+00  | --      | --                    | 0.0E+00 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 0.0E+00  | --      |
| Isophorone <sup>c</sup>                | 0                   | 1.4E+02                | 1.8E+01 | 1.5E+01  | --      | 1.4E+02               | 1.6E+01 | 1.5E+01  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 1.4E+02                   | 1.8E+01 | 1.5E+01  | --      |
| Kepone                                 | 0                   | --                     | 1.0E-01 | --       | --      | --                    | 1.0E-01 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.0E-01  | --      |
| Lead                                   | 0                   | --                     | --      | 5.0E+01  | --      | --                    | --      | 5.0E+01  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E+01  | --      |
| Malathion                              | 0                   | 1.4E+00                | 7.7E-01 | --       | --      | 1.4E+00               | 7.7E-01 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 1.4E+00                   | 7.7E-01 | --       | --      |
| Manganese                              | 0                   | --                     | --      | 4.7E+01  | 1.5E+03 | --                    | --      | 4.7E+01  | 1.5E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 4.7E+01  | 1.5E+03 |
| Mercury                                | 0                   | --                     | --      | 4.6E+01  | 5.9E+03 | --                    | --      | 4.6E+01  | 5.9E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 4.6E+01  | 5.9E+03 |
| Methyl Bromide                         | 0                   | --                     | 3.0E-02 | 1.0E+02  | --      | --                    | 3.0E-02 | 1.0E+02  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.0E-02  | 1.0E+02 |
| Methylene Chloride <sup>c</sup>        | 0                   | --                     | 0.0E+00 | --       | --      | --                    | 0.0E+00 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 0.0E+00  | --      |
| Methoxychlor                           | 0                   | 2.0E+02                | 2.3E+01 | 6.1E+02  | 4.6E+03 | 2.0E+02               | 2.3E+01 | 6.1E+02  | 4.6E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | 2.0E+02                   | 2.3E+01 | 6.1E+02  | 4.6E+03 |
| Mirex                                  | 0                   | --                     | --      | 1.0E+04  | --      | --                    | --      | 1.0E+04  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.0E+04  | --      |
| Nickel                                 | 0                   | --                     | --      | 1.7E+01  | 6.9E+02 | --                    | --      | 1.7E+01  | 6.9E+02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.7E+01  | 6.9E+02 |
| Nitrate (as N)                         | 0                   | --                     | --      | 6.9E-03  | 3.0E+01 | --                    | --      | 6.9E-03  | 3.0E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 6.9E-03  | 3.0E+01 |
| Nitrobenzene                           | 0                   | --                     | --      | 3.3E+01  | 6.0E+01 | --                    | --      | 3.3E+01  | 6.0E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.3E+01  | 6.0E+01 |
| N-Nitrosodimethylamine <sup>c</sup>    | 0                   | --                     | 5.0E-02 | 5.1E+00  | --      | --                    | 5.0E-02 | 5.1E+00  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E-02  | 5.1E+00 |
| N-Nitrosodiphenylamine <sup>c</sup>    | 0                   | 2.8E+01                | 6.6E+00 | --       | --      | 2.8E+01               | 6.6E+00 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 2.8E+01                   | 6.6E+00 | --       | --      |
| N-Nitrosodi-n-propylamine <sup>c</sup> | 0                   | 6.5E-02                | 1.3E-02 | --       | --      | 6.5E-02               | 1.3E-02 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 6.5E-02                   | 1.3E-02 | --       | --      |
| Nonylphenol                            | 0                   | --                     | 1.4E-02 | 6.4E-04  | 6.4E-04 | --                    | 1.4E-02 | 6.4E-04  | 6.4E-04 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.4E-02  | 6.4E-04 |
| Parathion                              | 0                   | 6.5E+00                | 5.0E+00 | 2.7E+00  | 3.0E+01 | 6.5E+00               | 5.0E+00 | 2.7E+00  | 3.0E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | 6.5E+00                   | 5.0E+00 | 2.7E+00  | 3.0E+01 |
| PCB Total <sup>c</sup>                 | 0                   | --                     | --      | 1.0E+04  | 8.6E+05 | --                    | --      | 1.0E+04  | 8.6E+05 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.0E+04  | 8.6E+05 |
| Pentachlorophenol <sup>c</sup>         | 0                   | --                     | --      | 8.3E+02  | 4.0E+03 | --                    | --      | 8.3E+02  | 4.0E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 8.3E+02  | 4.0E+03 |
| Phenol                                 | 0                   | --                     | --      | --       | --      | --                    | --      | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | --       | --      |
| Pyrene                                 | 0                   | --                     | --      | --       | --      | --                    | --      | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | --       | --      |
| Radionuclides                          | 0                   | --                     | --      | --       | --      | --                    | --      | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | --       | --      |
| Gross Alpha Activity<br>(pCi/L)        | 0                   | --                     | --      | 1.5E+01  | --      | --                    | --      | 1.5E+01  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.5E+01  | --      |
| Beta and Photon Activity<br>(mrem/yr)  | 0                   | --                     | --      | 4.0E+00  | --      | --                    | --      | 4.0E+00  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 4.0E+00  | --      |
| Radium 226 + 228 (pCi/L)               | 0                   | --                     | --      | 5.0E+00  | --      | --                    | --      | 5.0E+00  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E+00  | --      |
| Uranium (ug/l)                         | 0                   | --                     | --      | 3.0E+01  | --      | --                    | --      | 3.0E+01  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.0E+01  | --      |

| Parameter<br>(ug/l unless noted)                      | Background<br>Conc. | Water Quality Criteria |         |          |         | Wasteload Allocations |         |          |         | Antidegradation Baseline |         |          |    | Antidegradation Allocations |         |          |    | Most Limiting Allocations |         |          |         |
|---|---------------------|------------------------|---------|----------|---------|-----------------------|---------|----------|---------|--------------------------|---------|----------|----|-----------------------------|---------|----------|----|---------------------------|---------|----------|---------|
|   |                     | Acute                  | Chronic | HH (PWS) | HH      | Acute                 | Chronic | HH (PWS) | HH      | Acute                    | Chronic | HH (PWS) | HH | Acute                       | Chronic | HH (PWS) | HH | Acute                     | Chronic | HH (PWS) | HH      |
| Selenium, Total Recoverable                           | 0                   | 2.0E+01                | 5.0E+00 | 1.7E+02  | 4.2E+03 | 2.0E+01               | 5.0E+00 | 1.7E+02  | 4.2E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | 2.0E+01                   | 5.0E+00 | 1.7E+02  | 4.2E+03 |
| Silver  | 0                   | 4.3E+00                | --      | --       | --      | 4.3E+00               | --      | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 4.3E+00                   | --      | --       | --      |
| Sulfate   | 0                   | --                     | --      | 2.5E+05  | --      | --                    | --      | 2.5E+05  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.5E+05  | --      |
| 1,1,2,2-Tetrachloroethane <sup>c</sup>                | 0                   | --                     | --      | 1.7E+00  | 4.0E+01 | --                    | --      | 1.7E+00  | 4.0E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.7E+00  | 4.0E+01 |
| Tetrachloroethylene <sup>c</sup>                      | 0                   | --                     | --      | 6.9E+00  | 3.3E+01 | --                    | --      | 6.9E+00  | 3.3E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 6.9E+00  | 3.3E+01 |
| Thallium  | 0                   | --                     | --      | 2.4E+01  | 4.7E+01 | --                    | --      | 2.4E+01  | 4.7E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.4E+01  | 4.7E+01 |
| Toluene   | 0                   | --                     | --      | 5.1E+02  | 6.0E+03 | --                    | --      | 5.1E+02  | 6.0E+03 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.1E+02  | 6.0E+03 |
| Total dissolved solids                                | 0                   | --                     | --      | 5.0E+05  | --      | --                    | --      | 5.0E+05  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E+05  | --      |
| Toxaphene <sup>c</sup>                                | 0                   | 7.3E-01                | 2.0E-04 | 2.8E-03  | 2.8E-03 | 7.3E-01               | 2.0E-04 | 2.8E-03  | 2.8E-03 | --                       | --      | --       | -- | --                          | --      | --       | -- | 7.3E-01                   | 2.0E-04 | 2.8E-03  | 2.8E-03 |
| Tributyltin   | 0                   | 4.6E-01                | 7.2E-02 | --       | --      | 4.6E-01               | 7.2E-02 | --       | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | 4.6E-01                   | 7.2E-02 | --       | --      |
| 1,2,4-Trichlorobenzene                                | 0                   | --                     | --      | 3.5E+01  | 7.0E+01 | --                    | --      | 3.5E+01  | 7.0E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 3.5E+01  | 7.0E+01 |
| 1,1,2-Trichloroethane <sup>c</sup>                    | 0                   | --                     | --      | 5.9E+00  | 1.6E+02 | --                    | --      | 5.9E+00  | 1.6E+02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.9E+00  | 1.6E+02 |
| Trichloroethylene <sup>c</sup>                        | 0                   | --                     | --      | 2.5E+01  | 3.0E+02 | --                    | --      | 2.5E+01  | 3.0E+02 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.5E+01  | 3.0E+02 |
| 2,4,6-Trichlorophenol <sup>c</sup>                    | 0                   | --                     | --      | 1.4E+01  | 2.4E+01 | --                    | --      | 1.4E+01  | 2.4E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 1.4E+01  | 2.4E+01 |
| 2-(2,4,5-Trichlorophenoxy)<br>propionic acid (Silvex) | 0                   | --                     | --      | 5.0E+01  | --      | --                    | --      | 5.0E+01  | --      | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 5.0E+01  | --      |
| Vinyl Chloride <sup>c</sup>                           | 0                   | --                     | --      | 2.5E-01  | 2.4E+01 | --                    | --      | 2.5E-01  | 2.4E+01 | --                       | --      | --       | -- | --                          | --      | --       | -- | --                        | --      | 2.5E-01  | 2.4E+01 |
| Zinc  | 0                   | 1.3E+02                | 1.3E+02 | 7.4E+03  | 2.6E+04 | 1.3E+02               | 1.3E+02 | 7.4E+03  | 2.6E+04 | --                       | --      | --       | -- | --                          | --      | --       | -- | 1.3E+02                   | 1.3E+02 | 7.4E+03  | 2.6E+04 |

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 20 maximum for industries and design flow for Municipalities
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.  
Antidegradation WLAs are based upon a complete mix.  
Antideg. Baseline = (0.25(WQC - background conc.) + background conc.) for acute and chronic  
= (0.1(WQC - background conc.) + background conc.) for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Note: do not use QL's lower than the minimum QL's provided in agency guidance

| Metal        | Target Value (SSTV) |
|--------------|---------------------|
| Antimony     | 5.6E+00             |
| Arsenic      | 1.0E+01             |
| Barium       | 2.0E+03             |
| Cadmium      | 7.5E-01             |
| Chromium III | 5.0E+01             |
| Chromium VI  | 6.4E+00             |
| Copper       | 6.0E+00             |
| Iron         | 3.0E+02             |
| Lead         | 9.8E+00             |
| Manganese    | 5.0E+01             |
| Mercury      | 4.6E-01             |
| Nickel       | 1.4E+01             |
| Selenium     | 3.0E+00             |
| Silver       | 1.7E+00             |
| Zinc         | 5.2E+01             |

ATTACHMENT 7

SPECIAL CONDITIONS RATIONALE

VPDES PERMIT PROGRAM  
LIST OF SPECIAL CONDITIONS RATIONALE

Name of Condition:

B. OTHER REQUIREMENTS OR SPECIAL CONDITIONS

1.a. Sludge Reopener

Rationale: Required by the VPDES Permit Regulation, 9 VAC 25-31-220 C., and 40 CFR 122.44 (c)(4), which note that all permits for domestic sewage treatment plants (including sludge-only facilities) include any applicable standard for sewage sludge use or disposal promulgated under Section 405(d) of the Clean Water Act.

1.b. Water Quality Standards Reopener

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-220 D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria.

1.c. Total Maximum Daily Load (TMDL) Reopener

Rationale: For specified waters, Section 303(d) of the Clean Water Act requires the development of total maximum daily loads necessary to achieve the applicable water quality standards. The TMDL must take into account seasonal variations and a margin of safety. In addition, Section 62.1-44.19:7 of the State Water Control Law requires the development and implementation of plans to address impaired waters, including TMDLs. This condition allows for the permit to be either modified or, alternatively, revoked and reissued incorporating the requirements of a TMDL once it is developed. In addition, the reopener recognizes that, in according to Section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan or other wasteload allocation prepared under Section 303 of the Act.

2. Licensed Operator Requirement

Rationale: The Permit Regulation, 9 VAC 25-31-200 D and Code of Virginia 54.1-2300 et. seq., Rules and Regulations for Waterworks and Wastewater Works Operators (18 VAC 160-20-10 et seq.) requires licensure of operators.

3. Reliability Class

Rationale: Required by Sewage Collection and Treatment Regulations, 12 VAC 5-581-20 and 120 for all municipal facilities.

4. CTC, CTO and O & M Manual Requirements

Rationale: Required by the State Water Control Law, Section 62.1-44.19; the Sewage Collection and Treatment Regulations (12 VAC 5-581 et seq); Section 401 of the Clean Water Act; 40 CFR 122.41(e); and the VPDES Permit Regulation (9 VAC-25-31-190E).

5. 95% Design Capacity Notification

Rationale: Required by the VPDES Permit Regulation, 9 VAC 25-31-200 B.2. for all POTW and PVOTW permits. Best professional judgment is used to apply this condition to other (private) municipal treatment facilities.

6. Quantification Levels Under Part I.A.

Rationale: States are authorized to establish monitoring methods and procedures to compile and analyze data on water quality, as per 40 CFR part 130, Water Quality Planning and Management, subpart 130.4. Section b. of the special condition defines QL and is included per BPJ to clarify the difference between QL and MDL.

7. Compliance Reporting Under Part I.A.

Rationale: Defines reporting requirements for toxic parameters and some conventional parameters with quantification levels to ensure consistent, accurate reporting on submitted reports.

8. Effluent Monitoring Frequencies

Rationale: The incentive for reduced monitoring is an effort to reduce the cost of environmental compliance and to provide incentives to facilities which demonstrate outstanding performance and consistent compliance with their permits. Facilities which cannot comply with specific effluent parameters or have other related violations will not be eligible for this benefit. This is in conformance with Guidance Memorandum No. 98-2005 - Reduced Monitoring and EPA's proposed "Interim Guidance For Performance-Based Reduction of NPDES Permit Monitoring Frequencies" (EPA 833-B-96-001) published in April 1996.

9. Nutrient Reporting Calculations

Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated. The TMDL WLA for this facility as assigned is not in the form of a concentration limit (mg/l) as defined in the above statute but rather in a mass load (kg/d) and therefore the conversion from concentration limit to mass load part of the calculation is not required in order to demonstrate compliance with the WLA as required by the TMDL.

10. Indirect Dischargers

Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 B.1. for POTWs and PVOTWs that receive waste from someone other than the owner of the treatment works.

11. Sludge Management Plan

Rationale: The VPDES Permit Regulation, 9 VAC 25-31-420, and 40 CFR 503.1 specify the purpose and applicability for sludge management plans. The VPDES Permit Regulation, 9 VAC 25-31-100 J.4., also sets forth certain detailed information which must be included in a sludge management plan. The VPDES sewage sludge permit application form and its attachments constitute the sludge management plan and will be considered for approval with the VPDES permit. In addition, the Biosolids Use Regulation, 12 VAC 5-585-330 and 340, specifies the general purpose and control requirements for an O&M manual in order to facilitate proper O&M of the facilities to meet the requirements of the regulation.

ATTACHMENT 8

RECEIVING WATERS INFO./  
TIER DETERMINATION/STORET DATA/  
STREAM MODELING/  
303(d) LISTED SEGMENTS

# Planning Permit Review

**Date:** 1/2/2014

**To:** Kristie Britt, TRO

**Permit Writer:** MYW

**Facility:** VDOC St. Brides Correctional Center

**Permit Number:** VA0060526

**Issuance, Reissuance or Modification (if Modification describe):** Reissuance

**Permit Expiration Date:** 4/2/2014

**Waterbody ID ( ex: VAT-G15E):** VAT-K40R

**Topo Name:** Moyock

**Facility Address:**

701 Sanderson Road, Chesapeake, VA 23328

**Receiving Stream:** Attached are topographic maps showing facility property boundaries and outfall(s) locations for those included in this request.

**Stream Name:** Unnamed Tributary to Indian Creek

**Stream Data Requested?**

**Outfall #:** 001 **Lat Lon:** 36° 36' 41" 076° 11' 3"

**Outfall #:** **Lat Lon:**

**Outfall #:** **Lat Lon:**

**Stream Name (2):**

**Stream Data Requested?**

**Outfall #:** **Lat Lon:**

**Outfall #:** **Lat Lon:**

**Outfall #:** **Lat Lon:**

If greater than 2 receiving streams or 3 outfalls per stream please provide a separate table with outfall listings and Latitude Longitude description.

## Planning Review:

**303 (d): Indicate Outfalls which discharge directly to an impaired (Category 5) stream segment and parameters impaired**

Outfall 001 does not directly discharge to an impaired segment. The UT eventually discharges to Indian Creek that is impaired for DO.

**Tier Determination**

**Tier** The Outfall discharges to a Tier 1 water. The UT to Indian Creek is a low flow stream. See Attachment 1.

**Tier**

**Management Plan**

**Is the facility Referenced in a Management Plan?** No

**Are limits contained in a Management Plan?** No

**Review will be completed in 30 days of receipt of request.**

**Additional Comments:**

KNB 1/14/2014

Until further guidance is provided by OWRM Permits, assessment of waters for  $\text{NH}_3$  should be based upon OWRM Guidance No. 93-015 from Larry G. Lawson, dated June 22, 1993.

The above guidance specifies that the ambient  $\text{NH}_3$  data should be compared to the  $\text{NH}_3$  standard (calculated using 90th percentile of ambient data for pH and temperature of that segment) and by using the "STANDARDS.EXE Program" developed by OWRM Permits Modelling. (These environmental conditions are considered critical design conditions to protect water quality and to comply with WQS.) If the 97th percentile of the in-stream data is greater than either of the calculated  $\text{NH}_3$  standards (chronic or acute), then OWRM considers the standard is being violated and the segment is WQL.

#### 2.4.7 Wasteload Allocations Where The 7Q10 Is Zero Or Minimal

A discharge to a water course with a 7Q10 of zero or near zero would be required to have effluent limits that would comply with water quality standards, at a minimum. The discharge would have to be "self sustaining" so to comply with water quality standards. Therefore, the discharge would be WQL and the receiving water course with a 7Q10 of zero near zero would be considered a tier 1 segment.

Dry-ditch  
\* = Tier 1

A discharge to a tier 1 water that empties into a tier 2 water would have to be evaluated for antidegradation at the point of confluence of the two water courses, if the discharge is in close enough proximity to impact the tier 2 water. In the above scenario, antidegradation requirements to protect tier 2 waters may apply to a discharge to a tier 1 water. Therefore, effluent limits may be more stringent than required by the numerical water quality standards.

If a discharge occurs to a dry ditch or tributary that empties into a free flowing stream and the distance from the discharge to the next confluence is too short to model (based upon the current modelling programs), then the discharge should be modelled as if it occurs directly to the free flowing stream.

#### 2.4.8 Estuaries - Wasteload Allocations & TMDL Development

Similar to freshwater streams, water quality wasteload allocations (WQWLAs) and TMDLs in all tidal influenced waters will be expressed as a mass limitation for the conventional parameters ( $\text{BOD}_5$ ,  $\text{cBOD}_5$ , TKN, and  $\text{NH}_3$ ) and as a concentration for toxics.

Tidal freshwater segments and transition zone segments identified

DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER DIVISION  
OFFICE OF WATER RESOURCE MANAGEMENT

(SECOND DRAFT)  
GUIDANCE MANUAL  
FOR THE  
VIRGINIA WATER QUALITY MANAGEMENT PLAN

March 4, 1994

*Attachment 1-2*

# TMDL Permit Review

**Date:** 1/2/2014

**To:** Jennifer Howell, TRO

√ JSH 1/10/2014

**Permit Writer:** MYW

**Facility:** VDOC St. Brides Correctional Center

**Permit Number:** VA0060526

**Issuance, Reissuance or Modification (if Modification describe) :** Reissuance

**Permit Expiration Date:** 4/2/2014

**Waterbody ID (ex: VAT-G15E):** VAT-K40R

**Topo Name:** Moyock

**Facility Address:**

701 Sanderson Road, Chesapeake, VA 23328

**Receiving Stream:** Attached are topographic maps showing facility property boundaries and outfall(s) locations for those included in this request.

|   |   |
|---|---|
| <b>Stream Name: Unnamed Tributary to Indian Creek</b> |   |
| Click here to enter text.                             |   |
| <b>Outfall #:</b> 001                                 | <b>Lat Lon:</b> 36° 36' 41" 076° 11' 3'   |
| <b>Outfall #:</b> Click here to enter text.           | <b>Lat Lon:</b> Click here to enter text. |
| <b>Outfall #:</b> Click here to enter text.           | <b>Lat Lon:</b> Click here to enter text. |
| <b>Stream Name (2):</b> Click here to enter text.     |   |
| Click here to enter text.                             |   |
| <b>Outfall #:</b> Click here to enter text.           | <b>Lat Lon:</b> Click here to enter text. |
| <b>Outfall #:</b> Click here to enter text.           | <b>Lat Lon:</b> Click here to enter text. |
| <b>Outfall #:</b> Click here to enter text.           | <b>Lat Lon:</b> Click here to enter text. |

If greater than 2 receiving streams or 3 outfalls per stream please provide a separate table with outfall listings and Latitude Longitude description.

**Is there a design flow change? If yes give the change.** Click here to enter text.

## TMDL Review:

|  |                |
|--|----------------|
| <b>Is a TMDL IN PROGRESS for the receiving stream?</b> No  |                |
| <b>Has a TMDL been APPROVED that includes the receiving stream?</b>  |                |
| Yes, see below   |                |
| <b>If yes, Include TMDL Name, Pollutant(s) and date of approval:</b>   |                |
| Total maximum daily load development for the Northwest River watershed: a total phosphorus TMDL due to low dissolved oxygen impairment: Total phosphorus: EPA approved 4/26/2011, SWCB approved 6/25/2012. |                |
| <b>Is the facility assigned a WLA from the TMDL?</b>   | Yes, see below |
| <b>If Yes, what is the WLA?</b>  |                |
| Average annual load = 1877.68 kg/yr Total phosphorus<br>Maximum daily load = 5.144 kg/day  |                |

Review will be completed in 30 days of receipt of request.

**Additional Comments:**

## TMDL Permit Review

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Loads are calculated using the design flow provided during TMDL development (0.544 mil gal/ day)

ATTACHMENT 9

TABLE III (a) AND TABLE III (b) -  
CHANGE SHEETS

TABLE III (a)

VPDES PERMIT PROGRAM  
Permit Processing Change Sheet

1. Effluent Limits and Monitoring Schedule: (List any changes FROM PREVIOUS PERMIT and give a brief rationale for the changes).

| OUTFALL NUMBER | PARAMETER CHANGED | MONITORING LIMITS CHANGED<br>FROM / TO | EFFLUENT LIMITS CHANGED<br>FROM / TO | RATIONALE                             | DATE & INITIAL |
|----------------|-------------------|--|--------------------------------------|---------------------------------------|----------------|
| 001            | TP                | None to 1/Month                        | None to maximum 5.14 kg/d            | Requirement from Northwest River TMDL | 1/30/14 MYW    |
| 001            | TP Monthly Load   | None to 1/Month                        | Calculated kg/m                      | Requirement from Northwest River TMDL | 1/30/14 MYW    |
| 001            | TP Year-to-date   | None to 1/Month                        | Calculated kg/yr                     | Requirement from Northwest River TMDL | 1/30/14 MYW    |
| 001            | TP Calendar Year  | None to 1/Year                         | Monthly Average 1187.68 kg/yr        | Requirement from Northwest River TMDL | 1/30/14 MYW    |
| 001            | Dissolve Copper   | None to 1/6 Months                     | Monitoring only, maximum             | BPJ based on WQS/WLA analysis         | 02/18/14 MYW   |
|                |                   |  |                                      |                                       |                |
|                |                   |  |                                      |                                       |                |
|                |                   |  |                                      |                                       |                |
|                |                   |  |                                      |                                       |                |

| OTHER CHANGES FROM: | CHANGED TO:   | DATE & INITIAL |
|---------------------|---|----------------|
| Special Condition   | Add B.9 Nutrient Reporting Calculation                              | 1/30/14 MYW    |
| EPA Checklist       | No longer required for fact sheet                                   | 1/30/14 MYW    |
| No TMDL requirement | TMDL for TP see Attachment 8 - discharge to a 303(d) listed segment | 1/30/14 MYW    |

ATTACHMENT 10

CHRONOLOGY SHEET

## Chronology of Events

### 1/31/2014

|      |           |               |                                      |          |            |
|------|-----------|---------------|--------------------------------------|----------|------------|
| NPID | VA0060526 | Facility Name | VDOC - St Brides Correctional Center | Activity | Reissuance |
|------|-----------|---------------|--------------------------------------|----------|------------|

|    | Code       | Event  | Date       | Comment                        |
|----|------------|--|------------|--------------------------------|
| 1  | 316A       | 316(a) Variance                                    |            |                                |
| 2  | APRD       | Application received at RO 1st time                | 08/15/2013 |                                |
| 3  | DTOWNC3    | Third time comments received from owner            |            |                                |
| 4  | DTOBJ1     | First time comments received from owner on draft   |            |                                |
| 5  | DTOWN1     | FS/SOB draft permit sent to owner                  |            |                                |
| 6  | DTEPA      | FS/SOB draft permit sent to EPA/OWPS               |            |                                |
| 7  | MISC       | Miscellaneous                                      |            |                                |
| 8  | LGNPERM    | Local gov't notification                           |            |                                |
| 9  | DTOWN3     | FS/SOB draft permit sent to owner 3rd time         |            |                                |
| 10 | ROAPCP     | Application Administratively complete              | 11/22/2013 |                                |
| 11 | DTSITE     | Site visit   |            |                                |
| 12 | APCP       | Application totally / technically complete         | 12/12/2013 |                                |
| 13 | VPDESNO    | Permit number obtained (Iss)                       |            |                                |
| 14 | DTMIF      | App sent to Fed Agencies (list in comment field)   |            |                                |
| 15 | APRET3     | App returned/Additional info requested 3rd time    |            |                                |
| 16 | RONOTE     | Riparian landowners notified (Iss,Mod)             |            |                                |
| 17 | FAMSUB     | Financial Assurance Mechanism Submitted            |            |                                |
| 18 | APRPHOCAL2 | Second Application Reminder Phone Call             | 08/05/2013 |                                |
| 19 | FLED       | Permit expires                                     |            |                                |
| 20 | DTEFF      | Permit effective                                   |            |                                |
| 21 | PN2CO      | PN sent to CO for mailing list web site distrib    |            |                                |
| 22 | DTOWNC2    | Second time comments received from owner           |            |                                |
| 23 | DTOWN2     | FS/SOB draft permit sent to owner 2nd time         |            |                                |
| 24 | DT1VIMS    | VMRC concurrence on draft permit                   |            |                                |
| 25 | DTSITERP   | Site inspection report                             | 02/12/2010 |                                |
| 26 | DT1VDH     | App sent to State Agencies (list in comment field) | 11/27/2013 |                                |
| 27 | APRD4      | Applic/Additional info received at RO 4th time     |            |                                |
| 28 | APRET2     | App returned/Additional info requested 2nd time    |            |                                |
| 29 | APRPHOCAL1 | First Application Reminder Phone Call              | 06/10/2013 | due on 6/6 but I was out on SD |
| 30 | APCOMLET   | App complete letter sent to permittee              | 12/13/2013 |                                |
| 31 | PNHEAR     | Public hearing date                                |            |                                |
| 32 | DTC2EPA    | EPA concurrence on draft permit                    |            |                                |
| 33 | APRET4     | App returned/Additional info requested 4th time    |            |                                |
| 34 | DTLP       | Reissuance letter mailed                           | 04/01/2013 | email                          |
| 35 | PREVFLED   | Old expiration date                                | 04/02/2014 |                                |
| 36 | DT1PLAN    | FS/SOB draft permit sent to planning               |            |                                |
| 37 | APRET1     | App returned/Additional info requested 1st time    |            |                                |
| 38 | APDU       | Reissuance application due                         | 10/04/2013 |                                |
| 39 | DTDMRDUE   | First DMR due                                      |            |                                |
| 40 | DTOWNC4    | Owner concurrence of draft permit                  |            |                                |
| 41 | DTPLAN     | Planning concurrence on draft permit               |            |                                |
| 42 | DTC1VDH    | Comments rec'vd from State Agencies on App         | 12/05/2013 | VDH, No comments from DSS      |
| 43 | APRD2      | Applic/Additional Info received at RO 2nd time     |            |                                |

|      |           |               |                                      |          |            |
|------|-----------|---------------|--------------------------------------|----------|------------|
| NPID | VA0060526 | Facility Name | VDOC - St Brides Correctional Center | Activity | Reissuance |
|------|-----------|---------------|--------------------------------------|----------|------------|

|    | Code    | Event  | Date       | Comment |
|----|---------|--|------------|---------|
| 44 | SCCERTR | State Corporation certification received           |            |         |
| 45 | PNOT    | Date of Public Notice                              |            |         |
| 46 | DTNEWS  | Public notice letter sent to newspaper             |            |         |
| 47 | DTPNAUT | Public notice authorization received from owner    | 08/15/2013 |         |
| 48 | DTADJ   | FS/SOB/draft permit sent to adj. State(s)          |            |         |
| 49 | DTPKVDH | FS/SOB draft permit sent to State Agencies (list i |            |         |
| 50 | DTCOE   | Comments rec'vd from Federal Agencies on App       |            |         |
| 51 | APRD3   | Applic/Additional info received at RO 3rd time     |            |         |
| 52 | ROLISTR | Riparian owner list received                       |            |         |
| 53 | RORTTC  | Riparian owner request sent to tax commissioner    |            |         |
| 54 | DEPFEE  | Application fee deposited                          |            |         |
| 55 | DTSIGN  | Date Permit signed                                 |            |         |
| 56 | DTC2VDH | VDH concurrence on draft permit                    |            |         |
| 57 | DTREV   | Draft reviewed                                     |            |         |
| 58 | DTDDP   | Draft permit developed                             | 01/30/2014 |         |
| 59 | LGNRAPP | local gov't notified of receipt of app. (Iss/Mod)  |            |         |
| 60 | DTOWN4  | FS/SOB draft permit sent to owner 4th time         |            |         |